New Hampshire Division of Welfare

Title XIX Quality Control Project

SECOND YEAR REPORT

Project Sponsored By:

Office of Policy, Planning, and Research
Health Care Financing Administration
Department of Health, Education, and Welfare

State of New Hampshire
DEPARTMENT OF HEALTH AND WELFARE
DIVISION OF WELFARE
8 LOUDON ROAD
CONCORD 03301

RICHARD G. LACOMBE
Director

March 10, 1978

Dr. Otto M. Reid
Acting Chief, Ambulatory Care
Office of Demonstrations and
Evaluations, OPPR
Health Care Financing Administration
Department of Health, Education
and Welfare
Mary Switzer Memorial Building
330 C Street, S.W.
Washington, D.C. 20201

Dear Dr. Reid:

We are pleased to submit our Second Year Report on the New Hampshire Title XIX Quality Control Project #11-P-90147/1-03.

The report provides a comprehensive summation of our activities in the Second Year and presents a great deal of information of direct relevance to the administration of Medicaid. This information includes:

- a demonstration of the Error Prone Profile System as implemented in New Hampshire;
- an analysis of the relative effectiveness of routine State reviews in detecting errors;
- an examination of the relationship between dollars potentially saved from detecting errors and dollars misspent on ineligible or overpaid cases;
- a comparative analysis of District Office characteristics associated with error rates;
- a description of the impact and benefit-cost evaluation methodology to be applied in the Third Year currently underway.

(Continued)

The results in the Report continue to support the concept of error prone profiles as an effective mechanism for reducing State eligibility error rates. More generally, the results suggest the potential for this concept in other Public Assistance programs or, in fact, any program with eligibility requirements.

In summary, we hope that this report will be most useful to you in your program of Medicaid studies and to other States interested in implementing statistical profiles as a corrective action measure. The profiles have certainly been of value to New Hampshire and will continue to impact favorably on State operations.

We are currently preparing briefing materials--based on the contents of this report and our work plan for the Third Year--to present to you and other interested officials in the near future. In the interim, however, if you have any questions please contact Al Friedberg at (603) 271-3691.

Sincerely,

Richard G. Lacombe
Director, New Hampshire
Division of Welfare

Enclosure

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

This report summarizes the activities of the Title XIX Quality Control Demonstration Project in New Hampshire during the second year of operation. Readers interested in the activities during the first year should refer to the First Year Report. The Executive Summary highlights the major findings of the second year and is organized like the body of the report. Hence, readers desiring more detailed information may refer to the corresponding Chapter. First, however, we describe the background of the Project.

BACKGROUND OF THE PROJECT

In March, 1975, the Social and Rehabilitation Service (now HCFA) completed the design of a Medicaid Eligibility Quality Control (MEQC) system which required States to review samples of medically needy recipients in order to estimate eligibility and payment error rates. Because the system provided results that could be used to evaluate State performance in Medicaid, States saw the need to develop and implement corrective action procedures to reduce the extent of errors.

One of the corrective actions considered was the use of error prone profiles for statistically screening cases <u>likely</u> to be in error. This project was funded by the Office of Research and Demonstration to develop and test a methodology for generating such profiles and to develop a mechanism for using the information actually to remove error cases from the rolls.

THE ERROR PRONE PROFILE SYSTEM

The Error Prone Profile System is composed of two components--error prone profiles and a corrective action plan. The statistical technique used to develop the error prone profiles involved a search for combinations of Medicaid case characteristics which were associated with error cases (ineligible or overpaid) much more often than non-error cases. Thus, the technique differs from most other approaches that focus on the significance of single characteristics or variables as predictors of error proneness.

The corrective action plan involved the use of a Data Verification Unit (DVU). This unit--acting indpendently of other State operations--would intensively review all cases at application and redetermination that fit (matched) the statistical profiles. By construction, the proportion of error cases among this group is expected to be high. In most instances, the intensive review should be able to uncover errors that a routine State review would not.

This system was developed in the first year. In the second year, the system was implemented in four selected District Offices. In the next section, we discuss the process evaluation of the system, which describes whether or not the system performed in practice as expected.

DEMONSTRATION OF THE ERROR PRONE PROFILE SYSTEM IN NEW HAMPSHIRE (CHAPTER I)

In this section, we present key results of the process evaluation of the Error Prone Profile System implemented in New Hampshire. The impact

and benefit-cost evaluation will be completed during the Third Year.

The major comparison of interest is that between the error rate found by the DVU among cases fitting the profiles and the error rate among all cases. Of 367 cases fitting the profiles, 197 were actually in error--about 54%. The error rate among all cases, as determined by the sample taken in the first year, was under 24%. Thus, the profiles were about 2.25 times as efficient in pinpointing errors as random selection. Alternatively, the profiles enabled the District Offices to find about 42% of the errors while intensively reviewing less than 19% of the cases.

The Error Prone Profile System was found to be more effective for redetermination cases than for initial applications. This can be attributed to the stronger emphasis placed by the District Offices on initial applications relative to redeterminations. The result also suggests that the system could be used to identify those cases that should be redetermined as well as those cases that should not.

In most instances, the actual and predicted performance of the system were not significantly different. The proportion of all cases that matched the profiles was approximately as expected. Moreover, the proportion of these cases that were actually in error was also approximately as expected. Both proportions were stable from month to month and from one DVU worker to the next. Thus, the Error Prone Profile System performed very close to its potential.

However, certain judgmental considerations were identified that could be used to improve further the effectiveness of the system in practical operation. For example, in selecting profiles for application, the State should:

- take into account the type and nature of the error being committed on cases fitting the profile; if that type of error is corrected via another corrective action, the profile will not reach predicted performance;

- make sure that DVU staff carefully match cases to the profile since any mismatches will reduce the effectiveness of the system;

- take into account the accuracy with which certain case characteristics are recorded in the case folders, avoiding profile characteristics that key on inaccurately recorded items.

In sum, the conclusion of the process evaluation is favorable--the system appears to work as expected. Although this is most encouraging, we cannot yet conclude that the system is also highly cost effective.

MEASUREMENT OF THE EFFECTIVENESS OF CURRENT REVIEW PROCEDURES IN DETECTING ERRORS (CHAPTER II)

Initial application and redetermination reviews are central to the proper management of the Medicaid caseload. If these reviews could detect all errors, the ineligibility problem would essentially vanish. As an empirical measure of the actual effectiveness of routine reviews, a test was conducted that compared the relative ability of routine reviews and intensive reviews (as performed by the DVU) to detect errors. The following are the major results of this analysis:

- routine reviews detect about one out of five cases in error detected by intensive review;
- routine reviews conducted by rural offices are relatively more effective than those conducted by urban offices;
- the average length of time an error persists before detection is at least 8-1/2 months; the persistence of errors is, not surprisingly, greater in urban offices than rural offices;
- different levels of review between the extremes analyzed here--routine and intensive reviews--may be more cost-effective for error detection. Some of these alternative levels of review will be examined in the Third Year.

In sum, the above analysis demonstrated the rationale for a DVU since the DVU is much more likely to detect an error in a case (if an error exists) than the routine review procedure. The error prone profiles suggest that an error is likely to exist; the DVU must find the error.

MEASUREMENT OF THE COST OF A MEDICAID ERROR (CHAPTER III)

In this section, the question, how much does Medicaid save by detecting an error, is answered. The answer tells Medicaid officials how much undetected errors are costing the State (and, of course, the Federal Government). Our examination reveals that the question is more complex than might be expected.

The major reason for the difficulty in measuring the cost of a Medicaid error may be attributed to the dynamics of case behavior: an undetected ineligible case may stay on the rolls indefinitely; a case whose ineligibility is discovered has every incentive to return

to the rolls as soon as possible. Because of this, retrospective examination of dollars paid out to a case while ineligible is not a valid means of determining how much might have been saved had the error not been committed.

In particular, this implies that the results of the MEQC system should not be used to predict potential dollar savings from corrective actions. It can be rigorously shown that the MEQC system will always overstate the dollars that could be saved by eliminating errors. The parameter measured by the MEQC system "dollars paid out to cases while they were ineligible" is one that can be measured consistently and unambiguously and, hence, is useful for legal and/or accounting purposes. The parameter, however, does not reflect how many dollars could have been saved had the errors been detected and corrected initially.

To provide some empirical evidence of the difference between dollars that might have been saved and dollars paid to cases while they were ineligible, the study team examined all sample cases determined ineligible due to having resources over the allowed limit (excess resource cases). An algorithm was developed which accounted for the depletion in the case's resources after the ineligibility was discovered. The results of this analysis showed that dollars potentially saved by detecting the error cases were about 41% of the dollars misspent on those cases (37% for Nursing Home cases, 92% for Adult Independent cases).

Because data are not readily available to estimate the dollars potentially saved from corrective actions, alternative approaches are required. Given that the major deficiency is knowledge of what happens after a case is declared ineligible, the most direct method would be to follow up a sample of cases that have been removed from the rolls after errors are detected. Or, cases declared ineligible could be flagged in the eligibility files. Then estimates of the proportion who return to the rolls and the length of time before they return could be developed by matching new applications against the previously flagged cases. A follow up of this nature would provide excellent insight into the dynamics of the Medicaid caseload.

COMPARISON OF DISTRICT OFFICE PERFORMANCE (CHAPTER IV)

A great deal of variation in error rates among New Hampshire District Offices was observed. Therefore, District Office characteristics were analyzed to determine if the differences in error rates could be explained by these characteristics. The characteristics considered were: workload indices, backlogged applications, overdue redeterminations, absentee rates, quality of the facility, worker experience and education.

Interestingly, 98% of the variation in agency error rates (90% in overall error rates) could be explained by combining the

above variables in a multiple regression model. Exhibit 1 below shows the actual agency error rate in New Hampshire District Offices and the rate that would be predicted using the measured District Office characteristics in the equation.

Exhibit 1

ACTUAL VERSUS PREDICTED AGENCY ERROR RATES

District Office	Actual Agency Error Rate	Predicted Agency Error Rate
Claremont	12.8	12.3
Laconia	12.5	12.2
Conway	8.0	8.1
Concord	20.3	20.2
Portsmouth	14.7	15.6
Dover	11.6	11.3
Berlin	9.4	9.9
Manchester	16.9	16.8
Nashua	14.8	15.0
Salem	15.4	15.1

10 observations
7 variables

Predicted Agency Error Rate = -116.04 + 1.09*(Backlogged Applications) + 2.23*(Workload Index) + 0.04*(Overdue Redeterminations) + 5.46*(Absentee Rate) + 10.7*(Average Years of Experience) + 2.09*(Years of Education) - 9.03*(Facility Rating).

Although, the equation does a remarkable job of predicting, or explaining, the agency error rate, a causal relationship has not been established. Still, the results suggest that differences in error rates not only are due to differences in caseload but may also be correlated with District Office characteristics.

None of the variables describing District Cffices were significant predictors of error rates when considered alone; it is the combination of characteristics found in a District Office that allows prediction of its error rate. This is analogous to the concept of error prone profiles for Medicaid cases developed in this project--the joint characteristics of the case determine its error proneness.

IMPACT AND BENEFIT-COST EVALUATION (CHAPTER V)

Although the process evaluation of the system has been completed, the impact and benefit-cost evaluation have not. In this Chapter the methodology for the latter two evaluations is described. The key question to be answered in the impact evaluation is how did the error rates in these offices compare to the error rate that would have existed

or some other system.

without the Error Prone Profile System? Because this question cannot be answered directly, certain proxy measures of impact will be defined, such as (1) the improvement in error rates in the experimental offices from the sample taken before implementation to the sample taken after implementation; and (2) the improvement in the error rates in the experimental offices minus the improvement in the non-experimental (control) offices. Statistical tests will be applied to determine if the improvements are statistically significant.

The benefit-cost analysis will be accomplished by examining demonstration costs and benefits separately. Costs are divided into four components: data collection costs, computer costs, DVU costs, and other project

related costs. Estimates of the cost associated with each component above will be developed from analysis of project billings.

The benefits of the Error Prone Profile System, some of which are intangible, will include:

- net cost savings that accrue from eliminating ineligibility errors;
- cost avoidance due to deterrent effects;
- improved Medicaid administration in New Hampshire; and
- improved public assistance administration, in general.

The benefits computed will include only tangible costs as measured by the sum of savings on cases, where savings on a given case is defined as the dollars that would have been paid to the case if the system had not been implemented minus the dollars paid to the case if the system had been implemented. This definition of savings takes into account those situations described earlier in which cases may return to the rolls as eligible after ineligibility has been detected. The methodology makes use of the average monthly Medicaid payment multiplied by the average length of time a case is on the rolls multiplied by a discount rate to reflect the present value of future earnings. The result will then be adjusted for cases declared ineligible that might reapply and return to the rolls as eligible cases at a later point.

Regardless of the results of the benefit-cost analysis, the major benefits--namely, the transferability of the approach to other States and other Federal programs--may not be measured directly. This

transferability should provide an expanding and ongoing potential for the Error Prone Profile System.

CONTENTS AND LIST OF EXHIBITS

CONTENTS

PAGE

I. PROCESS EVALUATION OF THE ERROR PRONE PROFILE SYSTEM I-1

Abstract I-1
A. Review of the Error Prone Profile Concept I-2
B. Research Questions & Research Design I-14
C. Results of the Process Evaluation I-20

II. MEASUREMENT OF THE EFFECTIVENESS OF CURRENT REVIEW PROCEDURES IN DETECTING MEDICAID ERRORS II-1

Abstract II-1
A. Research Questions II-2
B. Relative Effectiveness of Routine Reviews II-3
C. Other Types of Review II-8

III. MEASUREMENT OF THE COST OF A MEDICAID ERROR III-1

Abstract III-1
A. Why Should We Know the Cost of a Medicaid Eligiblity Error? III-2
B. Why Don't We Know the Cost of a Medicaid Error? III-3
C. An Approach to Measuring Error Costs: Empirical Results III-6
D. Summary and Conclusions III-13

IV. COMPARATIVE ANALYSIS OF DISTRICT OFFICE ERROR RATES IV-1

Abstract IV-1
A. Case Technician Questionnaire IV-1
B. Comparative Analysis IV-4

CONTENTS (Continued)

PAGE

V. METHODOLOGY FOR IMPACT AND BENEFIT-COST EVALUATION OF THE ERROR PRONE PROFILE SYSTEM .. V-1

Abstract V-1
A. Introduction V-2
B. Research Design for the Impact Evaluation V-3
C. Research Design for the Benefit-Cost Evaluation V-12

APPENDICES:

Appendix A: Profile Match Sheets
Appendix B: Summary Statistics from Demonstration
Appendix C: Data Collection Instruments used during Demonstration
Appendix D: Case Technician Questionnaire
Appendix E: Comparative Analysis of District Offices Questionnaire
Appendix F: Scatter Plots of District Office Characteristics Versus Error Rates

LIST OF EXHIBITS

EXHIBIT NUMBER		PAGE
1	ACTUAL VERSUS PREDICTED AGENCY ERROR RATES	viii
I-1	THE ERROR PRONE PROFILE CONCEPT	I-3
I-2	PARAMETERS CHARACTERIZING PROFILE SYSTEMS	I-7
I-3	RANDOMLY GENERATED PROFILES: MONTE CARLO SIMULATION	I-10
I-4	DATA VERIFICATION UNIT	I-12
I-5	INFORMATION SOURCES CONTACTED DURING INTENSIVE REVIEW	I-13
I-6	EFFICIENCY RATES BY DISTRICT OFFICE AND TYPE OF CASE	I-22
I-7	EFFICIENCY RATES BY DISTRICT OFFICE AND TYPE OF CASE REVIEW	I-24
I-8	COMPARISON OF EXPECTED PROFILE PARAMETERS WITH OBSERVED VALUES	I-25
I-9	PROPORTION OF CASES MEETING THE PROFILE (p) BY DISTRICT OFFICE, TYPE OF CASE, AND MONTH	I-28
I-10	ERROR RATES AMONG VALIDATED MATCHES (q) BY DISTRICT OFFICE, TYPE OF CASE, AND MONTH	I-29
I-11	PROFILE ERROR RATES BY STAFF MEMBERS	I-31
I-12	MATCHING ERROR RATES--INCORRECT MATCHES BY TYPE OF CASE	I-32
I-13	MATCHING ERROR RATES--INCORRECT NON-MATCHES BY TYPE OF CASE	I-34
I-14	NUMBER OF MATCHING MISTAKES BY PROFILE ELEMENT	I-35

LIST OF EXHIBITS
(Continued)

EXHIBIT NUMBER		PAGE
II-1	DATA COLLECTION FORM FOR ESTIMATING R FACTOR	II-4
II-2	COST PER REVIEW VERSUS EFFECTIVENESS	II-6
II-3	R FACTOR COMBINED STATEWIDE 1975 AND 1976	II-7
II-4	R FACTOR COMBINED URBAN 1975 AND 1976	II-9
II-5	R FACTOR COMBINED RURAL 1975 AND 1976	II-10
III-1	SAMPLE "DOLLARS POTENTIALLY SAVED" WORKSHEET	III-8
III-2	COMPLETED "DOLLARS POTENTIALLY SAVED" WORKSHEET	III-11
IV-1	FACTORS CONTRIBUTING TO ERRORS RATED BY CASE TECHNICIANS	IV-3
IV-2	TABULATION OF ERROR RATES AND WORKLOAD CHARACTERISTICS FOR EACH DISTRICT OFFICE SORTED BY OVERALL ERROR RATE	IV-9
IV-3	TABULATION OF ERROR RATES AND STAFFING VARIABLES BY DISTRICT OFFICES SORTED ACCORDING TO OVERALL ERROR RATES	IV-11
IV-4	TABULATION OF ERROR RATES AND STAFFING VARIABLES BY DISTRICT OFFICES SORTED ACCORDING TO AGENCY ERROR RATE	IV-12
IV-5	TABULATION OF RESPONSES OF FACILITY VARIABLES AND THE ASSIGNED FACILITY RATING SORTED BY OVERALL ERROR RATES	IV-13
IV-6	VARIATION OF OFFICE PROCEDURE BY DISTRICT OFFICES	IV-15

LIST OF EXHIBITS
(Continued)

EXHIBIT NUMBER		PAGE
IV-7	TABULATION OF AVERAGE PERCENTAGES OF WORKLOAD DETERMINED THROUGH THE IMPLEMENTATION OF VARIOUS TYPES OF INTERVIEWING APPROACHES	IV-16
IV-8	URBAN-RURAL DESIGNATION OF DISTRICT OFFICES SORTED BY OVERALL ERROR RATE AND AGENCY ERROR RATE	IV-18
IV-9	CORRELATION MATRIX OF DISTRICT OFFICE CHARACTERISTICS	IV-21
IV-10	REGRESSION ANALYSIS RESULTS 1	IV-23
IV-11	REGRESSION ANALYSIS RESULTS 2	IV-24
IV-12	REGRESSION ANALYSIS RESULTS 3	IV-25
IV-13	REGRESSION ANALYSIS RESULTS 4	IV-26
IV-14	ACTUAL VERSUS PREDICTED AGENCY ERROR RATE	IV-27
V-1	ILLUSTRATIVE SAMPLE DATA	V-6
V-2	ALLOCATION OF 1977 SAMPLE TO DISTRICT OFFICES	V-11

CHAPTER I

PROCESS EVALUATION OF THE ERROR PRONE PROFILE SYSTEM

CHAPTER I

PROCESS EVALUATION OF THE ERROR PRONE PROFILE SYSTEM

ABSTRACT

The Error Prone Profile System has two basic components: statistical profiles of case characteristics to predict whether or not a particular case is ineligible, and a Data Verfication Unit (DVU) that intensively reviews cases deemed likely to be ineligible according to the profiles. This system, designed during the First Year of the demonstration project, was implemented in four New Hampshire District Offices during the Second Year. This Chapter provides the results of the process evaluation of the system as implemented. That is, we examine how the system actually worked and evaluate whether it performed as expected.

The results indicate that the system works properly. We found that the error rate among cases fitting the profiles was approximately 54% compared to a Statewide average of 24%. Thus, the system did enable the District Offices to focus on a subset of cases with a much higher error rate than in the overall caseload. In most instances, the actual and predicted performances of the system were not significantly different. In fact, the few differences found provided valuable insight into practical considerations relevant to the selection of profiles. The results were also stable from month to month and from one case technician to the next.

In sum, the results of the process evaluation are favorable. Although the actual impact and benefit-cost results are not yet available, the Error Prone Profile System is working successfully.

A. REVIEW OF THE ERROR PRONE PROFILE CONCEPT

In this section, we review the error prone profile concept tested during the March-August 1977 demonstration phase of the project. In particular we discuss:

- the objectives of the Error Prone Profile System;
- the approach developed for this project;
- the DVU concept.

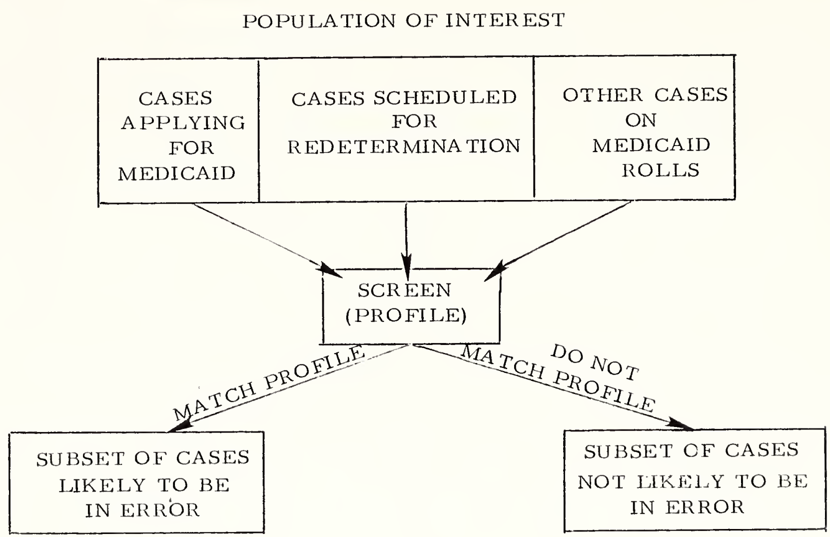
1. The Objectives of the Error Prone Profile System

The overall objective of the Error Prone Profile System is to improve the administration of the Medicaid program through a more efficient allocation of staff resources. More specifically, the aim of the system is to reduce the error rate associated with Medicaid eligibility decisions and, consequently, to reduce the dollars misspent in the program.

The Error Prone Profile System attempts to achieve these objectives by enabling Medicaid administrators to focus their attention on those cases likely to be in error--ineligible or overpaid--and to spend less attention on cases likely to be error free. Exhibit I-1 illustrates the basic concept. The statistical profiles developed act as a screen that divides the Medicaid population into two groups--cases <u>likely</u>

Exhibit I-1

THE ERROR PRONE PROFILE CONCEPT



to be in error and cases not likely to be in error. Thus, special attention can be focused on the cases likely to be in error in order to determine those that actually are in error. These cases can be removed from the rolls or denied Medicaid eligibility.

Although the project was initiated as an application of quantitative techniques to improving Medicaid administration, the concept is clearly transferable to other public assistance programs--AFDC, Food Stamps and SSI. More generally, the approach is applicable to any situation where eligibility is established prior to receipt of benefits. Therefore, the project must be viewed from a broader perspective than the Medicaid program alone; the ultimate objective is to validate and extend the benefits of the project and the error prone profile concept to many areas of government.

In the next section of this report we briefly describe the statistical approach* developed to generate the error prone profiles. Then, we explain the Data Verification Unit (DVU), the organization used to identify the actual error cases among those designated likely to be in error.

2. The Approach Developed for this Project

Early in the project, the study team decided that the available statistical techniques for screening populations were for several reasons not well suited to the particular problem of screening

---

* Readers desiring more detail on this approach are encouraged to read the First Year Report.

Medicaid cases. Hence, a new statistical approach was developed for classification that was:

- free from mathematical assumptions;
- tailored to the problem at hand;
- readily transferable to other States and other Federal programs;
- sensitive to practical constraints;
- easy to use at the operational level.

The statistical technique developed reflects the essential nature of a screening system: given that a Medicaid case has a certain combination of characteristics (age, sex, marital status, bank accounts, etc.), how likely is the case to be in error? In statistical terms, this is a statement of conditional probability which is different from asking how likely is a Medicaid case drawn at random to be in error. The idea is to use readily available knowledge or characteristics about the case to increase predictability.

Specifically, the statistical technique searches for <u>combinations</u> of characteristics that tend to be associated with error cases rather than cases not in error. For example, suppose cases with characteristics A <u>and</u> (B <u>or</u> C) <u>and</u> (D <u>or</u> E <u>or</u> F) are found ten times as likely to be ineligible as cases without such a combination of characteristics. If a case being reviewed has characteristics A, B and E, the caseworker recognizes this case as error prone. In

other words, the caseworker is using the screen or profile to make a preliminary judgment of error-proneness. The caseworker does not decide whether the case is actually in error--this is the task of the DVU defined in the next section.

Profiles or screens such as the one described above may be characterized by two parameters denoted "p" and "q":

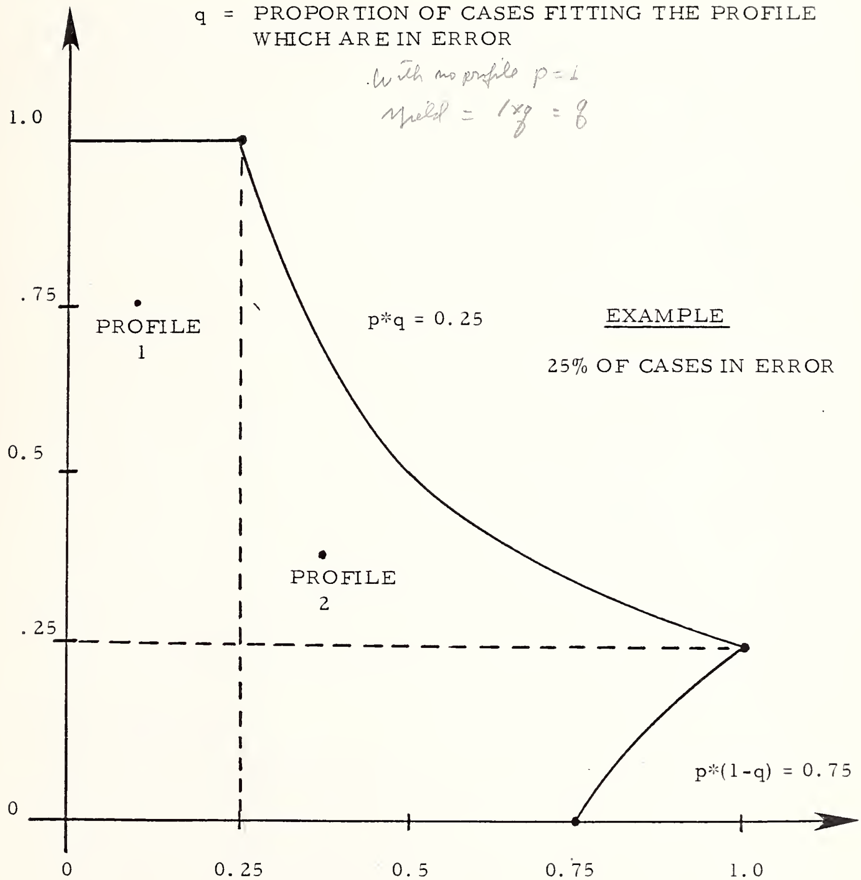
- "p" is used to denote the probability that a Medicaid case drawn at random fits the specified profile;
- "q" is used to denote the conditional probability that a Medicaid case fitting the profile is in error.

In general, there will be a trade-off associated with the two parameters. The more cases that fit a given profile (the higher the "p"), the less likely those cases will be all error cases (the lower the "q"). Exhibit I-2 describes the mathematical boundaries associated with the parameters of any profile system. For illustration, the overall error rate in the caseload is assumed to be 25%. Note that profile 1 has a higher value of "q" but a lower value of "p" than does profile 2. The choice between these profiles can be difficult, depending upon practical constraints, such as, how many cases a DVU can screen, and upon cost considerations, such as how much does it cost to find an error.

The value "p*q" is often a good proxy measure for selecting profiles since it represents the "yield" of error cases associated with a profile system. For example, suppose p=0.2 and q=0.8 Then, if 100 cases are compared to the profile, 0.2 x 100=20 would

Exhibit I-2

PARAMETERS CHARACTERIZING PROFILE SYSTEMS



p = PROPORTION OF CASES FITTING THE PROFILE

be expected to fit the profile; of these, 0.8 x 20=16 would be expected to be in error. If the actual error rate among the 100 cases is 25%, or 25 cases, then the screening system helped identify $\frac{16}{25}$ = 64% of the errors by focusing on only 20% of the cases. Note that 16=p*q*100. Clearly the higher the value of "p*q", the higher the yield of error cases being found via the screening system.

Before describing the actual statistical algorithm developed, we discuss the data base used to develop the profiles.

Data Base

In the first year, a random sample of 758 Medicaid cases was drawn from the New Hampshire eligibility files. Each of these cases was given an intensive review similar in scope to a Medicaid Eligibility Quality Control (MEQC) review. In addition, 189 items of information were collected on each case. Thus, for each case a full set of characteristics was available in addition to the eligibility status of the case. This data base could therefore be used to match case characteristics with case errors and also to distinguish error cases from non-error cases.

Statistical Algorithm

Because 189 variables were too many to include in a multivariate profile, they were first reduced to a manageable number (less than 20) according to standard statistical techniques and practical considerations, such as difficulty in interpreting results and difficulty in collecting the data on an ongoing basis.

For the remaining variables in the manageable set, an algorithm was developed based on Monte Carlo simulation to combine the variables. The computer would randomly select variables and variable values according to certain decision rules and combine them using the logical operators <u>and</u> or <u>or</u>. For example, the computer might select the first value of the first variable and the fourth or fifth value of the second variable and the second value of the third variable and so on. The computer could also ignore variables.

Exhibit I-3 shows a sample output from this process. The columns QAE and QRE represent the "q" value for agency errors and recipient errors respectively for each profile. The column B represents the estimate of the "net benefit" of the profile. However, because of difficulty in interpreting this figure, the selection of profiles was based primarily on maximizing "q" for a specified value of "p". Note that there is not a direct correspondence between q and B. The last column in Exhibit I-3 indicates which variables and variable values make up the profile.

One obvious advantage of the random generation process is its flexibility. From the available profiles, the user may choose one with a low value of "p" and a high value of "q" or one with a high value of p*q. Or, different District Offices could choose different profiles to meet their own constraints.

Exhibit I-3

RANDOMLY GENERATED PROFILES: MONTE CARLO SIMULATION

P= 0.2876	Q= 0.3853	QAE= 0.5000	QRE= 0.6071	PQ= 0.1108	B= 19.50	110001100111101
P= 0.1715	Q= 0.4308	QAE= 0.5179	QRE= 0.5893	PQ= 0.0739	B= 15.61	111101000100100
P= 0.2533	Q= 0.4063	QAE= 0.5000	QRE= 0.6154	PQ= 0.1029	B= 19.88	110110001100001
P= 0.3193	Q= 0.3512	QAE= 0.4941	QRE= 0.6118	PQ= 0.1121	B= 16.09	011100111010110
P= 0.3311	Q= 0.3546	QAE= 0.4831	QRE= 0.6067	PQ= 0.1174	B= 17.25	111100110001011
P= 0.3021	Q= 0.3668	QAE= 0.5000	QRE= 0.5952	PQ= 0.1108	B= 17.63	100010010100011
P= 0.3113	Q= 0.3686	QAE= 0.4943	QRE= 0.6207	PQ= 0.1148	B= 18.46	011110011111100
P= 0.3391	Q= 0.3541	QAE= 0.5055	QRE= 0.6044	PQ= 0.1201	B= 17.58	001000111111101
P= 0.3061	Q= 0.3707	QAE= 0.4884	QRE= 0.6163	PQ= 0.1135	B= 18.47	001110011101010
P= 0.3047	Q= 0.3593	QAE= 0.4819	QRE= 0.6145	PQ= 0.1095	B= 16.61	111101110010110
P= 0.2678	Q= 0.3547	QAE= 0.5278	QRE= 0.5972	PQ= 0.0950	B= 13.97	101100101110010
P= 0.3193	Q= 0.3678	QAE= 0.4944	QRE= 0.6180	PQ= 0.1174	B= 18.78	000110111011001
P= 0.2639	Q= 0.3800	QAE= 0.4868	QRE= 0.6316	PQ= 0.1003	B= 17.17	110110100111010
P= 0.2164	Q= 0.4085	QAE= 0.4627	QRE= 0.6418	PQ= 0.0884	B= 17.24	110010000011010
P= 0.2823	Q= 0.3832	QAE= 0.5000	QRE= 0.5976	PQ= 0.1082	B= 18.83	100001000101111
P= 0.2718	Q= 0.3786	QAE= 0.4744	QRE= 0.6282	PQ= 0.1029	B= 17.50	011111110101000
P= 0.2836	Q= 0.3674	QAE= 0.4810	QRE= 0.6076	PQ= 0.1042	B= 16.64	111101110101100
P= 0.2243	Q= 0.4118	QAE= 0.4714	QRE= 0.6286	PQ= 0.0923	B= 18.24	011111010001000
P= 0.2863	Q= 0.3871	QAE= 0.4762	QRE= 0.6071	PQ= 0.1108	B= 19.67	001110000001111
P= 0.3219	Q= 0.3607	QAE= 0.5000	QRE= 0.6023	PQ= 0.1161	B= 17.77	111011111101001
P= 0.3219	Q= 0.3484	QAE= 0.5059	QRE= 0.6000	PQ= 0.1121	B= 15.75	001100101100111
P= 0.3443	Q= 0.3602	QAE= 0.5000	QRE= 0.5957	PQ= 0.1240	B= 18.92	100100011011111
P= 0.2177	Q= 0.3758	QAE= 0.5323	QRE= 0.6129	PQ= 0.0818	B= 13.70	001001101010100
P= 0.2929	Q= 0.3784	QAE= 0.4881	QRE= 0.6190	PQ= 0.1108	B= 18.82	111001001011011
P= 0.2889	Q= 0.3699	QAE= 0.4815	QRE= 0.6049	PQ= 0.1069	B= 17.31	110100110101010
P= 0.2071	Q= 0.4013	QAE= 0.5079	QRE= 0.6190	PQ= 0.0831	B= 15.73	010111000100010
P= 0.3443	Q= 0.3487	QAE= 0.4835	QRE= 0.6044	PQ= 0.1201	B= 16.90	111111110001111
P= 0.3391	Q= 0.3502	QAE= 0.4889	QRE= 0.6000	PQ= 0.1187	B= 16.91	011011110001111
P= 0.2533	Q= 0.3958	QAE= 0.4868	QRE= 0.6316	PQ= 0.1003	B= 18.53	100111101000001
P= 0.2810	Q= 0.3756	QAE= 0.4750	QRE= 0.6125	PQ= 0.1055	B= 17.66	110111010001110
P= 0.2282	Q= 0.3815	QAE= 0.5152	QRE= 0.6212	PQ= 0.0871	B= 15.03	100101101010100
P= 0.2309	Q= 0.3943	QAE= 0.4928	QRE= 0.6087	PQ= 0.0910	B= 16.71	101111000001110
P= 0.3153	Q= 0.3640	QAE= 0.4828	QRE= 0.6207	PQ= 0.1148	B= 17.95	011111100110011
P= 0.2876	Q= 0.3716	QAE= 0.4691	QRE= 0.6420	PQ= 0.1069	B= 17.48	100110011011100
P= 0.2718	Q= 0.3932	QAE= 0.4691	QRE= 0.6420	PQ= 0.1069	B= 19.52	001110100011001
P= 0.2322	Q= 0.3920	QAE= 0.4928	QRE= 0.6377	PQ= 0.0910	B= 16.54	111101101011000
P= 0.2559	Q= 0.3557	QAE= 0.4928	QRE= 0.6232	PQ= 0.0910	B= 13.48	110001101101010
P= 0.2309	Q= 0.3886	QAE= 0.4053	QRE= 0.6324	PQ= 0.0897	B= 16.04	001110100101100
P= 0.3285	Q= 0.3655	QAE= 0.5055	QRE= 0.6044	PQ= 0.1201	B= 18.94	110010111111001
P= 0.3113	Q= 0.3602	QAE= 0.5176	QRE= 0.6000	PQ= 0.1121	B= 17.11	000011011110110
P= 0.3127	Q= 0.3713	QAE= 0.4886	QRE= 0.6250	PQ= 0.1161	B= 18.96	100110111010001
P= 0.2968	Q= 0.3511	QAE= 0.5190	QRE= 0.5949	PQ= 0.1042	B= 14.94	110101101111110
P= 0.2203	Q= 0.4371	QAE= 0.4795	QRE= 0.6301	PQ= 0.0963	B= 20.77	010111000111100
P= 0.2942	Q= 0.3812	QAE= 0.5059	QRE= 0.6118	PQ= 0.1121	B= 19.32	010011101011101

Profiles were developed separately for Adult Independent cases (MA-only adult recipients with independent living arrangements), Nursing Home cases, and AFDC cases. The specific profiles developed are presented in Appendix A.

3. The Data Verification Unit (DVU)

The Error Prone Profile System has value as a management tool only when it is linked to a method of finding errors among the cases deemed error prone. The system of corrective action that proved most viable in New Hampshire is the Data Verification Unit, or DVU. Exhibit I-4 illustrates the role of the DVU.

The DVU is a single unit used to review error prone cases for four District Offices. After each case is compared to the profile by the DVU staff, those cases with characteristics that do not match the profile are sent to the District Office. The DVU intensively reviews all aspects of the case related to eligibility. Exhibit I-5 presents some of the information sources contacted during an intensive DVU review. If a case is found to be in error, corrective action (denial of benefits or termination of eligibility) is then taken.

In summary, the Error Prone Profile System is used to identify a subset of cases with a high probability of being in error. The DVU reviews intensively all cases meeting this profile so that ineligible cases may be identified and removed from the rolls. Conceptually, the approach is a highly promising mechanism for dealing with the eligibility

Exhibit I-4

DATA VERIFICATION UNIT:

- HIGHLY TRAINED PERSONNEL
- INTEGRATED INTO STATE OPERATIONS
- REVIEWING ERROR PRONE CASES INTENSIVELY

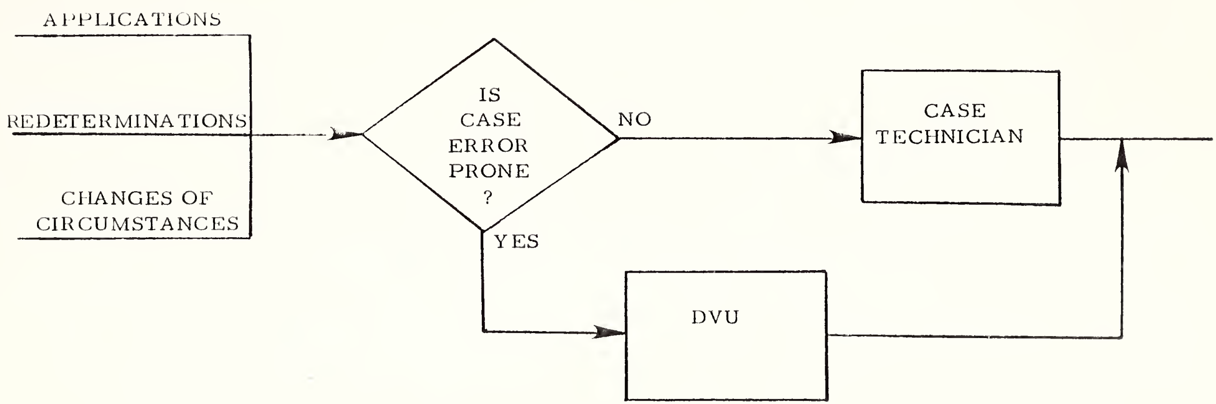


Exhibit I-5

INFORMATION SOURCES CONTACTED DURING INTENSIVE REVIEW

- BANKS
- SAVINGS & LOANS
- PROBATE RECORDS
- VITAL STATISTICS
- MOTOR VEHICLES
- SSA
- VA
- DIVORCE COURTS
- PROPERTY RECORDS
- THIRD PARTY INSURERS
- UNEMPLOYMENT INSURANCE SERVICE
- EMPLOYERS (PAST AND CURRENT)
- BROKERAGE HOUSES
- OTHER

problem in Medicaid. Yet, we must know, will the system work in the real world? In the remainder of this chapter, we discuss the process evaluation--based upon actual implementation of the error prone profile concept and the DVU from March to August, 1977.

B. RESEARCH QUESTIONS AND RESEARCH DESIGN

1. Research Objectives

The major research objective of the six month trial demonstration conducted between March and August, 1977 was to evaluate the process of the Error Prone Profile System--did the system operate as it was designed to? Specifically, the research was intended to answer the following questions about the actual operation of the Error Prone Profile System:

- Were the actual values of the profile parameters computed from the demonstration results similar to the values predicted before demonstration began; that is, did the same proportion of cases match the profiles as expected?
- Was the proportion of cases in error among the cases matching the profiles as expected?
- Was the level of resources needed to operate the system, i. e., the fraction of cases fitting the profile, stable from month to month?
- Did the DVU work as expected? Did the error rate vary significantly by DVU worker?

Although the impact and benefit-cost evaluations are not completed, some idea of the potential impact of the system is given by the results of this process evaluation. The system was designed

to have a beneficial impact on the Medicaid program. Hence, if the process evaluation shows the system to perform as expected, then the desired impact on Medicaid could also be as expected. Validation of this logic must await the actual impact evaluation.

2. Research Design for the Process Evaluation

The key parameters of the system are "p", the proportion of cases that fit the profiles, and "q", the proportion of cases in error among the cases fitting the profiles. Expected values of these parameters were developed for the four specified experimental District Offices. Two urban District Offices (Manchester and Concord) and two rural District Offices (Berlin and Conway) were selected. For these offices, each case due for redetermination in the months March to August, 1977 was matched against the appropriate profile and, if a match occurred, the case was intensively reviewed by the DVU. Similarly, new application cases for the period January to June, 1977 were matched against the appropriate profile.

In the following, we outline the procedures for initial applications and redeterminations given to the District Offices involved in this project:

Redeterminations

- The District Office Assistance Payments Unit identified MA-only cases* to be redetermined during the required redetermination month. A list of these cases was furnished

* Cases receiving medical benefit but not cash assistance payments.

to the Project Director, no later than 30 days prior to the first day of the redetermination month.

- A representative from the DVU was sent to the District Office to review the case records identified on the list and to determine which of the cases matched previously developed error prone profiles.

- The Title XIX Quality Control Unit furnished a two-part list to the District Assistance Payments Supervisor identifying both the error prone cases and the non-error prone cases.

The Assistance Payments Unit conducted redeterminations in the normal manner for those cases identified as non-error prone cases.

- The DVU conducted a redetermination on all cases identified as error prone. The DVU arranged the home visits, completed the redetermination forms and verified all required documents. The DVU returned the completed forms to the District Office Assistance Payments Unit with written conclusions concerning the eligibility of each case.

- The Assistance Payments Unit reviewed and evaluated the DVU documentation and processed each case.

Initial Applications

- The District Office Assistance Payments Unit processed all initial applications in the usual manner and, at the end of the month, sent a list of all MA-only cases accepted and denied during the month to the Project Director, Title XIX Quality Control.

- A representative from the DVU was sent to the District Office to review these cases and identify those which were error prone.

- The DVU accomplished an after-the-fact review of the error prone cases by making a home visit and verifying documents.

- The DVU submitted the completed verification and a written narrative of their findings to the District Office Assistance Payments Unit.

- The Assistance Payments Unit reviewed the status of each case in light of the DVU findings and made any adjustments or terminations in the case status as appropriate.

The District Office made available to Title XIX Quality Control the case records of all MA-only cases identified by the error prone profiles. Appropriate controls were maintained by both the Assistance Payments Unit and the DVU to ensure the proper safeguarding and timely return of the case records.

The matching process was also conducted according to specific procedures. Since the matching process was done manually and was tedious and time-consuming, it was accomplished by non-DVU staff. During most of the demonstration, one staff person was occupied for 10 days each month matching cases in Manchester and Concord; another spent 5 days a month matching cases in Berlin and Conway.

Matching was accomplished in two steps. The first step required matching the information in the case record against the profiles. Because the records in Manchester and some in Concord were not altogether accurate or current, certain cases required a follow-up check with the recipients. Although the same procedure was followed in Berlin and Conway, this extra step was not necessary because very few inaccuracies were discovered. In the future,

the matching process will not be so time-consuming because the Eligibility Management System will enable the computer to match the stored case information against the profiles immediately following the completion of a routine application or redetermination review.

Some of the variables used for matching were discovered to be unsuitable, because there was no consistent way to interpret them uniformly. One question on the Manchester/Concord Nursing Home profile, for instance, inquired if the recipient had been institutionalized less than 12 months. Since this question could be interpreted to mean either 12 months of total institutionalization or 12 months of institutionalization subsequent to Medicaid, responses may not accurately reflect a case's error proneness.

Another variable, "Client receives a pension," proved difficult to relate to error proneness. Since the profiles were developed from intensive reviews conducted after the fact, our data base did not differentiate between reported and unreported events. In the case of pensions, is the case error prone because there <u>is</u> a pension, or is it error prone because the pension is not reported? In the third year, we are refining the profiles and the data collection material to clarify such ambiguities.

The time constraints of the review process were tight. The arrangements with the experimental District Offices stipulated that error prone cases would be obtained on the first of the month

and be completed and returned no later than the last day of the same month. In order to meet this deadline, each researcher had to process, interview, and mail out requests for information by the end of the second week to insure that all relevant eligibility criteria would be collected in the allotted time frame. In Manchester and Concord up to 75 requests per bank were made each month. Special arrangements were established with each bank in Manchester and Concord, so that accounts of certain recipients would be checked and the results returned prior to the end of the month. In order to give the banks a realistic lead time, all requests for bank information had to be at the bank by the 10th of each month. In some instances, the banks were compensated for the increased services rendered.

One staff person was responsible for monitoring, compiling, recording and reporting the statistics for each month on a monthly basis. It was important to have accurate and updated information on the performance of the experiment so that problems could be identified and mid-experiment adjustments made as soon as possible. Early in the demonstration, for example, it became evident that the error rates for cases matching the Adult Independent profile in Manchester and Concord were significantly lower than had been anticipated. A major cause of this problem was the failure of one of the profile elements dealing with bank accounts to capture married couples with a joint bank account. To remedy this situation, a new Adult Independent profile was implemented in these

two offices beginning in June. Further, all relevant earlier cases were rematched using the new profile and, where necessary, intensively reviewed by the DVU. The data relevant to Concord and Manchester Adult Independent cases thus relate to the new profile.*

For the process evaluation, six profiles were used:

- Adult Indpendent - Manchester/Concord;
- Adult Independent - Conway/Berlin;
- Nursing Homes - Manchester/Concord;
- Nursing Homes - Conway/Berlin;
- AFDC - Manchester/Concord;
- AFDC - Conway/Berlin.

A copy of each profile is presented in Appendix A.

C. RESULTS OF THE PROCESS EVALUATION

1. Effectiveness of the Profile System

The key statistic to monitor in evaluating the profile system is the actual error rate for cases fitting the profile. In the experimental offices, of the 367 cases fitting the profile, 197, or 53.68%, were actually in error. The random error rate found for the 1975/76 sample was 23.7%. Thus, assuming the error rate has not changed significantly since 1975/76, the profiles were 2.26 times more efficient

---

* This new profile differed from the others used in the demonstration in that it was based on the subset of the 1975/76 sample cases which were selected from the Manchester/Concord offices. All other profiles were constructed from the complete sample of cases from all the District Offices in the State.

in finding errors than a random search would have been. Expressed another way, the profiles enabled the DVUs to find about 42% of the errors by reviewing less than 19% of all new application and redetermination cases.

Exhibit I-6 shows (1) the error rate found among cases fitting the profile in each District Office, (2) the corresponding random error rate from the 1975/76 sample, and (3) the efficiency rate (profile error rate divided by the random error rate). Finally, the exhibit shows the potential absolute reduction in the error rate attributable to the profile system. For example, assume that the actual error rate for all application and redetermination cases was 23.70%, as found in 1975/76. Application of the profiles could reduce that error rate in six months by an absolute amount of 10.04%, that is to 23.70%-10.04% = 13.66%.

The efficiency rates in Exhibit I-6 all exceed 1.0. In general, the efficiency rate is highest for low random error rates and lowest for high random error rates. There are two possible explanations for this phenomenon:

- The random error rates shown for 1975/76 were based on sample results in each District Office. Thus, the high and low values of the random error rate may represent, at least partially, chance fluctuations above and below a true value.

- The lower the random error rate, the harder it is to find errors by random search; hence, the opportunity to focus the search is better. Conversely, if the error rate is high, even a random profile would catch a large number of errors.

Exhibit I-6

EFFICIENCY RATES BY DISTRICT OFFICE AND TYPE OF CASE

District Office	Type of Case	Error Rate For Cases Matching Profile (1977)	Random Error Rate (1975/76)	Efficiency Rate	Potential Error Rate Reduction (%)
Manchester	AI	.529	.217	2.44	5.61%
	NH	.559	.355	1.57	15.43%
	AFDC	.579	.421	1.38	8.05%
	All Cases	.552	.293	1.88	N.A.
Concord	AI	.372	.342	1.09	7.70%
	NH	.627	.303	2.07	24.26%
	AFDC	1.000	N.A.	N.A.	12.5 %
	All Cases	.563	.299	1.88	N.A.
Berlin	AI	.250	.074	3.38	28.25%
	NH	.625	.176	3.55	6.93%
	AFDC	1.000	.375	2.67	6.00%
	All Cases	.486	.154	3.16	N.A.
Conway	AI	.292	.143	2.04	6.75%
	NH	.800	.125	6.40	11.12%
	AFDC	.600	N.A.	N.A.	10.74%
	All Cases	.353	.120	2.94	N.A.
All Offices	AI	.410	.171	2.40	N.A.
	NH	.641	.300	2.14	N.A.
	AFDC	.688	.318	2.16	N.A.
	All Cases	.537	.237	2.26	10.04%

The implications of these findings are important since they indicate that the profile concept will continue to be effective as the error rate drops in a State and that the profile concept may be effective in all States regardless of the error rate.

Exhibit I-7 shows the efficiency rate in each District Office for new applications and redeterminations. Except for the Manchester District Office, the efficiency rate for redeterminations was higher than for initial applications. This result reflects the greater scrutiny already given initial applications relative to redeterminations. And, because of its efficiency in reducing errors in redeterminations, the system could be used to determine which cases <u>should</u> be redetermined rather than waiting until a set redetermination period has elapsed.

2. <u>Actual Versus Predicted Performance</u>

Although the results presented above demonstrate that the error prone profiles were an efficient mechanism for detecting errors, the question remains: how did the profile parameters compare to expected performance?

Exhibit I-8 contains a comparison by District Office and type of case of the demonstration (1977) profile parameters with the expected 1975/76 profile parameters "p" and "q". The results show that in only three instances--Manchester Adult Independent cases, Manchester AFDC cases and Concord AFDC cases--were the demonstration "p" values significantly below the corresponding expected values. There are two explanations for these deviations:

Exhibit I-7

EFFICIENCY RATES BY DISTRICT OFFICE AND TYPE OF CASE REVIEW

District Office	Type of Case Review	Error Rate for Cases Matching Profiles (1977)	Random Error Rate (1975/76)	Efficiency Rate
Manchester	New Applications	.533	.267	2.00
	Redeterminations	.560	.289	1.78
	All Cases	.552	.293	1.88
Concord	New Applications	.555	.417	1.40
	Redeterminations	.567	.277	2.17
	All Cases	.563	.299	1.88
Berlin	New Applications	.360	.250	1.44
	Redeterminations	.800	.136	5.88
	All Cases	.486	.154	3.16
Conway	New Applications	.429	.250	1.72
	Redeterminations	.385	.095	4.05
	All Cases	.353	.120	2.94
All Offices	New Applications	.488	.261	1.87
	Redeterminations	.563	.227	2.48
	All Cases	.537	.237	2.26

Exhibit I-8

COMPARISON OF EXPECTED PROFILE PARAMETERS WITH OBSERVED VALUES

District Office	Type of Case	Proportion of Cases Matching Profile (p)		Error Rate Among Cases Matching Profile (q)	
		Observed	Expected	Observed	Expected
Manchester	AI	0.106	0.207**	0.529	0.720*
	NH	0.276	0.346	0.559	0.607
	AFDC	0.139	0.302	0.579	0.538
Concord	AI	0.207	0.207	0.372	0.720**
	NH	0.387	0.346	0.627	0.607
	AFDC	0.125	0.302	0.875	0.538
Berlin	AI	0.109	0.127	0.250	0.490*
	NH	0.111	0.124	0.625	0.656
	AFDC	0.060	0.093	1.000	0.750+
Conway	AI	0.231	0.127	0.292	0.490*
	NH	0.139	0.125	0.800	0.656
	AFDC	0.179	0.093	0.600	0.750+

* SIGNIFICANT AT 0.05 LEVEL
** SIGNIFICANT AT 0.01 LEVEL
\+ INSUFFICIENT DATA FOR A STATISTICAL TEST

- the profiles were not developed based on District Office-specific data,* but from a Statewide data base. Thus, an additional component of the District Office variation in case characteristics is not incorporated in the statistical test;

- the data used to develop the profiles were up to two years old by the time of implementation; hence, the distribution of case characteristics might have changed.

Regardless, the proportion of cases fitting the profile is somewhat lower than expected. This suggests that if a District Office has the resources to review intensively a proportion p of the cases, a profile should be used that fits a somewhat larger proportion of cases to allow for the possibility of actually fitting a smaller proportion. For example, if a District Office says it can intensively review 20% of initial applications and redeterminations, it should be given a profile with a p of, say, 0.25 (25%).

The statistic q is even more important. The results displayed in Exhibit I-8 show that only the Adult Independent cases in each office had a q value significantly below the expected figure. However, a specific change in District Office procedures has probably had an impact on Adult Independent cases. Many of the errors detected in the 1975/76 data for Adult Independent cases were due to case technicians neglecting to consider the income of a spouse in determining eligibility. Since that time, the District Offices have corrected this procedure and reduced the

---

* Except for Manchester and Concord Adult Independent profiles.

incidence of errors. The implication is that, among alternate profiles, one should be selected which helps detect errors of a type not easily corrected by other procedures.

The demonstration involved profiles that were selected on a statistical basis. The results of the demonstration suggest that the profile selection procedure should involve at least two steps:

- statistical selection of a number of "good" profiles based on sample results;
- judgmental selection of the best profile among the good profiles, taking into account real world considerations such as the need to avoid profiles designed to detect errors that no longer occur.

However, the demonstration did show that, allowing for random variation, the profile parameters were of the general magnitude expected. The power of the error prone profile concept was not lost in implementation.

3. Stability of Profile Parameters

Exhibits I-9 and I-10 respectively show the monthly values of p and q in the experimental District Offices. Both parameters were remarkably stable from one month to another, an important consideration in the practical application of such a system. When the amount of data was sufficient, each of the series of monthly q values--by office and type of case--were subjected to a test of significant difference among monthly values. In only three instances--Adult Independent cases in Manchester, the "all cases" category in

Exhibit I-9

PROPORTION OF CASES MEETING THE PROFILE (P)
BY DISTRICT OFFICE, TYPE OF CASE, AND MONTH

District Office	Type of Case	March	April	May	June	July	August	Total
Manchester	AI	.100	.121	.117	.043	.098	.143	.106
	NH	.314	.343	.209	.234	.296	.242	.276
	AFDC	.261	.120	.267	.080	.167	.032	.139
	All Cases	.219	.207	.169	.113	.175	.160	.174
Concord	AI	.212	.206	.262	.122	.353	.136	.207
	NH	.270	.421	.368	.323	.688	.467	.387
	AFDC+	.286	.231	.083	0	0	.167	.125
	All Cases	.235	.381	.297	.210	.321	.231	.270
Berlin	AI	.081	.071	.045	.200	.055	.167	.109
	NH+	.042	.095	.182	.08	.125	.261	.111
	AFDC+	.167	.250	0	0	0	0	.06
	All Cases	.066	.116	.067	.122	.078	.255	.103
Conway	AI	.316	.261	.077	.050	.286	.040	.231
	NH	0	.250	.125	.071	.250	.500	.139
	AFDC+	.125	0	.333	.143	.330	0	.179
	All Cases	.226	.241	.136	.073	.079	.389	.202
All Offices	AI	.152	.154	.143	.087	.145	.171	.143
	NH	.214	.323	.268	.205	.333	.283	.267
	AFDC	.227	.167	.143	.067	.139	.047	.125
	All Cases	.187	.224	.196	.128	.193	.201	.187

+The data were insufficient to perform a statistical test.

Exhibit I-10

ERROR RATES AMONG VALIDATED MATCHES (q)
BY DISTRICT OFFICE, TYPE OF CASE, AND MONTH

District Office	Type of Case	March	April	May	June	July	August	Total
Manchester	AI*	.714	.182	.333	.333	.875	.692	.529
	NH	.545	.583	.692	.454	.562	.500	.559
	AFDC+	.833	.667	.750	1.000	.333	0	.579
	All Cases	.571	.474	.577	.500	.630	.567	.552
Concord	AI	.818	.143	.364	.200	.167	0	.372
	NH	.700	.562	.714	.500	.454	.857	.627
	AFDC+	1.000	1.000	1.000	0	0	1.000	1.000
	All Cases*	.782	.406	.606	.353	.353	.583	.563
Berlin	AI+	.333	1.000	1.000	.250	0	0	.250
	NH+	.500	.500	.500	1.000	.500	.667	.625
	AFDC+	1.000	1.000	0	0	0	0	1.000
	All Cases	.500	.800	.667	.500	.333	.333	.486
Conway	AI+	.333	.333	0	0	.250	.330	.292
	NH+	0	1.000	0	1.000	1.000	1.000	.800
	AFDC+	1.000	0	0	1.000	.500	0	.600
	All Cases	.429	.429	0	.667	.333	.429	.412
All Offices	AI*	.630	.240	.364	.231	.474	.393	.403
	NH	.588	.581	.676	.542	.533	.633	.596
	AFDC	.700	.875	.667	1.000	.400	.667	.714
	All Cases	.620	.500	.569	.475	.500	.508	.537

*A significant difference between the monthly rates was detected at the .05 level.

+The data were insufficient to perform a statistical test.

Concord, and all Adult Independent cases--were there statistically significant month-to-month variations in the error rates.

4. Stability of Profile Error Rates by Staff Members

If the profile is truly detecting errors at the predicted rate, the proportion of errors found by each reviewer in the DVU should also exhibit stability. Even though the data include errors detected in both apparent and validated profile matches, the results shown in Exhibit I-11 support this hypothesis. That error detection during intensive reviews is not caseworker-dependent might relate to the attitude of the DVU caseworkers: since they believe there is a high incidence of errors among the cases they examine, they feel their search for an error is worthwhile.

5. Accuracy of Profile Matching

An important question raised prior to the demonstration phase of the Project relates to the accuracy with which cases could be matched to the appropriate profile. Two types of potential matching errors were identified: cases erroneously classified as matching a profile, and cases which actually match a profile not identified as such. During the course of the six-month demonstration phase of the project, data were collected on both types of errors.

The number of apparent matches and the number of these cases which, upon review, became non-matches are summarized in Exhibit I-12.

Exhibit I-11

PROFILE ERROR RATES BY STAFF MEMBERS

Staff Member	Number of (Apparent) Profile Matches	Number of Errors	Error Rate
1	18	9	.500
2	15	7	.467
3	3	3	1.000
4	17	10	.588
5	16	8	.500
6	39	22	.564
7	32	15	.469
8	31	14	.452
9	38	15	.395
10	32	20	.625
11	33	16	.485
12	40	17	.425
13	34	21	.618
14	29	13	.448
15	45	20	.444
All Members	422	210	.502

Exhibit I-12

MATCHING ERROR RATES--
INCORRECT MATCHES BY TYPE OF CASE

Date		Adult Independent	Nursing Home	AFDC	All Cases
All Months	Number of Apparent Matches	142	234	35	411
	Number of Incorrect Matches	8	36	10	54
	Matching Error Rate	.056	.154	.286	.131

This type of mismatch rate was lowest for Adult Independent cases and highest for AFDC cases. The overall mismatch rate is over thirteen percent.

For the first three months of the demonstration phase, data were also collected on the second type of mismatch error and are presented in Exhibit I-13. These error rates, where a true match is erroneously regarded as a non-match, are not as large as the corresponding matching error rates; the overall non-matching error rate is under six percent.

These error rates may be partially explained by outdated information available in the case records in Manchester and Concord. In these offices, redeterminations were as much as two to three years overdue, and the information in the case record was correspondingly unreliable.

A more detailed examination of the source of mismatch errors is provided by the data in Exhibit I-14. This Exhibit provides the number of times that each element of the profile was responsible for a matching error. The main source of error appears to lie in the nursing home profile for Manchester and Concord--and within that profile, elements Level II, numbers 2 and 3 and Level III, numbers 4 and 5. Some or all of these particular variables are suspect as workable profile components because they have been differently interpreted. This suggests that the accuracy of case information on characteristics incorporated in the profile should be considered as a factor in profile selection and/or that case information should be validated prior to the initiation of the intensive review for that case.

Exhibit I-13

MATCHING ERROR RATES--INCORRECT NON-MATCHES BY TYPE OF CASE

Date		AI	NH	AFDC*	All Cases
March-May	Number of Apparent Non-Matches	414	299	--	713
	Number of Incorrect Non-Matches	19	22	--	41
	Non-Matching Error Rate	.046	.074	--	.058

*There were no data available on AFDC non-matches during the March-May period.

Exhibit I-14

NUMBER OF MATCHING MISTAKES BY PROFILE ELEMENT

Type of Case	Profile Element	Number of Mistakes		Profile Element	Number of Mistakes	
		Manchester	Concord		Berlin	Conway
AI	Level I #1	0	0	Level I	1	2
	2	1	0	Level II #1	0	0
	3	4	3	2	0	3
	Level II #4	2	1	3	0	2
	5	2	4	4	0	1
	6	1	3	5	1	3
	7	1	0	6	0	0
	8	2	6	7	0	0
	9	1	1	8	0	0
NH	Level I	3	1	Level I	0	0
	Level II #1	1	1	Level II #1	1	0
	2	6	15	2	0	0
	3	0	7	3	0	0
	Level III #1	1	0	Level III #1	0	0
	2	0	1	2	0	0
	3	1	0	3	0	0
	4	5	7	0 4	1	0
	5	13	3	5	0	0
AFDC	Level I	-	-	Level I	1	0
	Level II #1	5	1	Level II #1	0	0
	2	2	0	2	0	0
	3	2	0	3	0	0

6. Summary and Conclusions

The results of the practical application of the error prone profile and DVU in New Hampshire can be summarized as follows:

- The error prone profiles were found to be 2.26 times more efficient than random case selection in detecting errors. The error rate among cases fitting the profiles was about 54% compared to an estimated Statewide average of 24%.

- The lower the error rate in a District Office, the more efficient was the error prone profile.

- The error prone profile was more efficient for redeterminations than for initial applications.

- In most instances, the actual and predicted performances of the system were not significantly different.

- In selecting among alternate profiles developed via the statistical algorithm, several judgmental considerations could be used to improve the effectiveness of the system, such as:

  - taking into account the type of error being made by cases fitting the profile; if that type of error is easily corrected by another procedure, the profile will probably not reach predicted performance;

  - taking into account the accuracy with which certain case characteristics are recorded; profiles that key on inaccurately recorded items should be avoided;

  - recognizing that a certain percentage of errors are controversial. There is not always agreement between Quality Control and District Office Personnel about the interpretation of an error. In other words, certain policy rules are ambiguous making it difficult to render a conclusive decision about a case's eligibility. Whether or not to average income or compute income on a monthly basis is one such area where differences of interpretation often arise. Also MA In and Out or spend-down cases are inherently difficult to interpret uniformly. Profiles will work better if they focus on unambiguous areas.

- The profile parameters exhibited good stability from month to month; also, the error rates for cases reviewed by each DVU staff member were stable.

Allowing for the usual deviations from expected performance associated with implementation of a new concept to a practical setting, the conclusion of this process evaluation of the error prone profile concept is clear: the Error Prone Profile System works. However, the actual impact of the system on State error rates has not been established, nor has the cost-effectiveness of the system been proved. Chapter V presents the intended methodology for the impact and benefit-cost evaluation, results of which will be obtained during the Third Year.

CHAPTER II

MEASUREMENT OF THE EFFECTIVENESS OF CURRENT MEDICAID REVIEW PROCEDURES IN DETECTING ERRORS

CHAPTER II

MEASUREMENT OF THE EFFECTIVENESS OF CURRENT MEDICAID REVIEW PROCEDURES IN DETECTING ERRORS

ABSTRACT

Initial application and redetermination reviews routinely carried out by the State are central to effective administration of the Medicaid program. If these reviews could detect all errors, the error rate would drop significantly. There is a limit, however, to the level of resources spent on reviews, and, clearly, a trade-off exists between the level of resources spent and the reduction in the error rate that is cost-effective.

In this Chapter, we compare two different levels of review--the routine review carried out by the State and the intensive review carried out by the Data Verification Unit (DVU). We find that the routine review is about one-fifth as effective as the intensive review in detecting errors: routine reviews find only one out of every five errors detected by an intensive review.

Because both intensive reviews and MEQC-level reviews are able to detect agency and recipient errors, it can be argued that the case technician is responsible for both types of errors--if the technician looks hard enough for errors and, consequently, spends enough time on reviews, the errors will be found. But is it cost-effective to spend the extra money? We suggest that some alternative levels of review

between the extremes of routine and intensive reviews may be more cost-effective for the State.

A. RESEARCH QUESTIONS

All new cases applying for Medicaid are given a routine review to verify that eligibility requirements have been met. Also, cases are given a redetermination review after a given period of time (usually twelve months; six months for AFDC cases) to ascertain whether continued eligibility is warranted. Because of the heavy caseload, these reviews are limited in scope and depth. Although the cursory review is not the cause of errors, it is a reason errors may remain in the system. The intensive review, on the other hand, is an in-depth review of the eligibility elements for each case. Given any set of cases, the intensive reivew would be expected to detect more errors than a routine review.

In this Chapter, we evaluate routine reviews and compare them with intensive reviews. We also consider other research questions related to the review process:

- Does the effectiveness of a routine review vary significantly by District Office?
- Does the effectiveness of a routine review differ between urban and rural District Offices?
- Is the length of time an error persists correlated with the effectiveness of routine reviews?
- What other types of review could be considered with a level of effort somewhere between the routine review and intensive review?

In the First Year Report we defined a parameter R, which measures the effectiveness of a routine review in detecting an error relative to the effectiveness of an intensive review. For a fixed set of cases (all of which contain errors) that are given independent routine and intensive reviews, we can express R as follows:

$$R = \frac{\text{number of cases found in error by the routine review}}{\text{number of cases fround in error by the intensive review.}}$$

In order to develop estimates of this parameter, the project staff identified the error cases found by the intensive review of the 758 case sample. For each such error case the project staff determined whether the error had been discovered by the routine review and how long the error had persisted on the rolls. A sample of the form used to record the information for each error case is provided in Exhibit II-1.

B. RELATIVE EFFECTIVENESS OF ROUTINE REVIEWS

The overall estimate of R was 0.2; that is, for every five error cases detected by the intensive review, only one had been detected by a routine review. This result clearly supports the utility of the intensive review used in conjunction with error prone profiles.

Some observers believe that errors attributable to recipient misrepresentation are not the fault of the case technicians; reviewers cannot be expected to verify all facts provided by applicants. However, the intensive reviews (and MEQC reviews) do detect both agency errors and recipient errors. Thus, it is clearly possible to detect recipient

Exhibit II-1

DATA COLLECTION FORM FOR ESTIMATING R FACTOR

District Office______________________ Review Period

Error Case Name______________________ ______________________

Purpose - In order to develop cost effective medicaid error prone profiles, we must have valid and reliable statistics for the probability that the district office will uncover an error during a routine review, (application or redetermination) given that there is an error.

Assumptions - The District Office must not be credited for uncovering an error(s) if Quality Control or MEQC findings pointed out the error to them before they were aware of its existence.

If the District Office found the error(s) subsequent to September 15, 1976, we must assume that it was uncovered by MEQC.

We are only concerned in analyzing those errors that we uncovered during the January - June 1975 sampling effort.

Instructions - Answer the following questions and then write a summary in the space provided detailing, explaining and substantiating your answers above.

In the event that there were more than one error in a case, indicate your answers for each error separately.

1. Date of MA acceptance by District Office (money payment or non-money payment)______________________
2. Was the case reviewed during Project Update 1975, and did P.U. uncover the error(s).______________________
3. How many redeterminations were performed on the case since MA acceptance ______________________
4. Who discovered the error(s) - the District Office, Quality Control or MEQC ______________________
5. When was the error(s) discovered by the District Office, Quality Control or MEQC ______________________
6. How long did the error exist before it was uncovered either by the District Office, Quality Control or MEQC ______________________
7. What were the principal factors that lead to the uncovering of the error(s)
   1. application
   2. redetermination
   3. case action update
   4. Q.C. report
   5. MEQC findings
   6. other (explain)

SUMMARY (if necessary, use back of page)

errors, but it is not necessarily cost-effective to do so. However, it might be feasible to consider alternative levels of review--somewhere between the routine and intensive levels--which would increase the proportion of errors detected.

Exhibit II-2 illustrates a hypothetical relationship between the probability of detecting errors and the level of effort associated with a review: the more spent on a review, the more likely an error will be found. The intensive review (level E) represents the scale against which other hypothetical levels of review may be compared. The actual curve of Exhibit II-2 is hypothesized. In the Third Year we will examine the cost-effectiveness of alternate levels of review in more detail. At this juncture, we are merely pointing out the flexibility a State Medicaid program has with respect to review levels.

Exhibit II-3 shows the R factor computed for each District Office in New Hampshire. With the R factor ranging from 0 to 0.57, the data appear to show a significant variation among the District Offices in effectiveness of routine reviews. A Chi-square test comparing the observed values with the expected values if all offices had similar R factors showed the differences to be significant at the 10% level, but not at the 5% level. Thus, although there is some evidence in the sample that the value of R differs among District Offices, the evidence is not strong.

The differences among R factors, however, may be more noticeable if the offices were grouped differently. Specifically, some observers

Exhibit II-2

COST PER REVIEW VERSUS EFFECTIVENESS

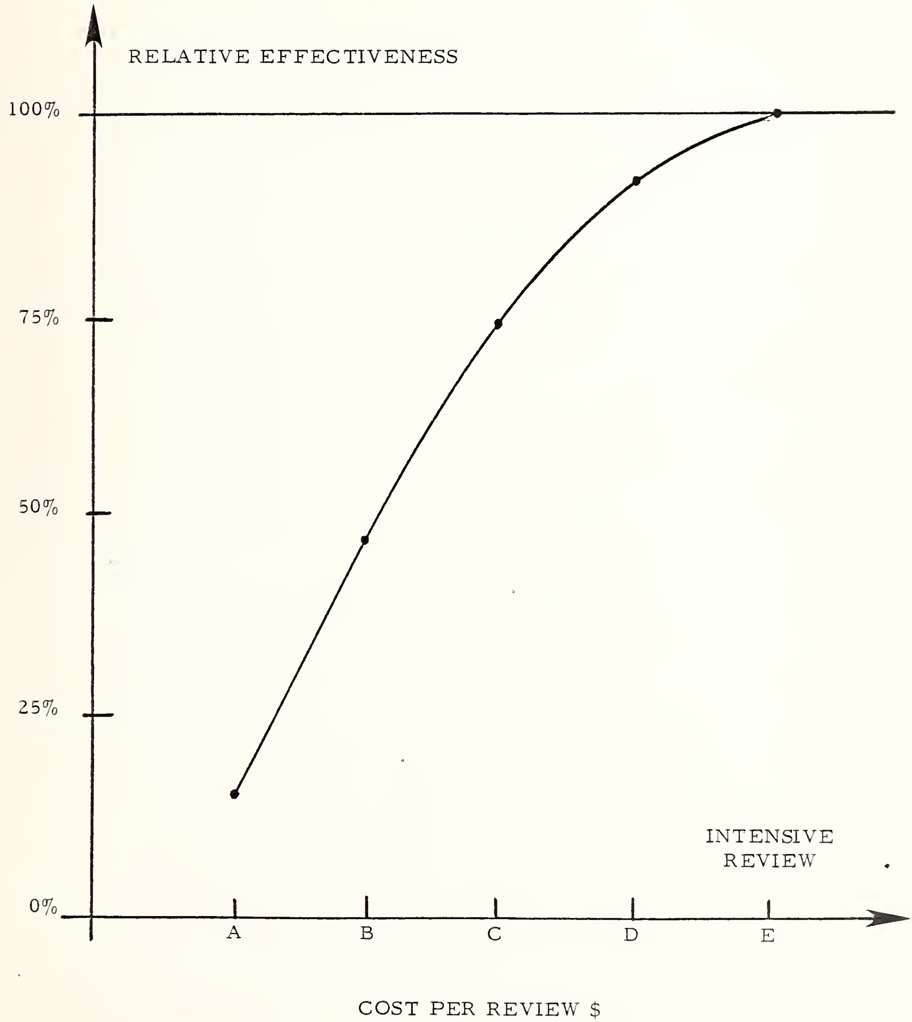


Exhibit II-3

R FACTOR COMBINED STATEWIDE 1975 AND 1976

District Office	Number of Errors Detected by Intensive Reviews	Number of These Errors Detected by Routine Reviews	R
Berlin	17	9	.53
Claremont	10	3	.30
Concord (Franklin)	24	3	.13
Conway	7	4	.57
Dover (Rochester)	29	5	.17
Keene	9	0	.00
Laconia	16	4	.25
Manchester (Peterborough)	66	10	.15
Nashua	20	4	.20
Portsmouth	50	9	.18
Salem	10	1	.10
Woodsville (Plymouth, Ashland)	12	2	.16
TOTAL	270	54	.20

believe the effectiveness of routine reviews to be greater in rural District Offices because these offices tend to know their caseloads better. Exhibits II-4 and II-5 show the R factors for urban and rural District Offices respectively. Note that urban District Offices had a combined R value of 0.16, while rural District Offices had a value of 0.30. Testing the hypothesis that urban offices had the same R value as rural offices against the alternative that rural offices had a higher value of R, using the normal approximation to the binomial distribution, we concluded that rural offices do have a higher value of R. That is, the relative effectiveness of routine reviews is higher in rural offices than urban offices.

The implications of this finding are important for the application of error prone profiles. As discussed in the First Year Report, the cost-effectiveness of the error prone profile and DVU depends at least partially on the DVU's ability to find errors that would not have been found by the routine review process. Based upon the above findings, the DVU will be more valuable in urban District Offices. When a State is allocating resources to the error prone profile and DVU system, proportionately more resources should be applied to those District Offices with a low value of R.

C. OTHER TYPES OF REVIEW

We have seen that the routine level of review conducted by District Offices at initial application and redetermination detects

Exhibit II-4

R FACTOR COMBINED URBAN 1975 AND 1976

District Office	Number of Errors Detected by Intensive Reviews	Number of These Errors Detected by Routine Reviews	R
Concord (Franklin)	24	3	.12
Dover (Rochester)	29	5	.17
Manchester (Peterborough)	66	10	.15
Nashua	20	4	.20
Portsmouth	50	9	.18
Salem	10	1	.10
TOTAL	199	32	.16

Exhibit II-5

R FACTOR COMBINED RURAL 1975 AND 1976

District Office	Number of Errors Detected by Intensive Reviews	Number of These Errors Detected by Routine Reviews	R
Berlin	17	9	.53
Claremont	10	3	.30
Conway	7	4	.57
Keene	9	0	.00
Laconia	16	4	.25
Woodsville (Plymouth, Ashland)	12	2	.16
TOTAL	71	22	.30

only one-fifth of the error cases that a more intensive review would detect. The Error Prone Profile System attempts to improve this situation by enabling the District Offices (through DVU) to give more intensive reviews to those cases likely to be in error. As suggested earlier, there may be alternate ways of improving or augmenting the routine review process in order to increase the probability of detecting errors without conducting an intensive review.

We believe that the level of review needed can be defined by the error prone profiles. In other words, the profiles can be developed to indicate not only which cases are likely to be in error but also what level of review is best for each case. For example, the errors for some cases may be readily detected with an MEQC-level review; whereas, other cases may need the full intensive review.

In the Third Year we will examine the cost-benefit parameters associated with different levels of review as well as develop an algorithm for dividing the error prone cases into subgroups which receive different levels of review. We will also examine the potential of sequential reviews with the overall aim of finding the error, if it exists, in the most efficient fashion. For example, a case judged error prone might first be given a review wherein the elements recorded on the face sheet would be desk reviewed for accuracy. If the error is found, no further review would be done. If no error is found, verification of income and resource information by mailing questions to banks, savings and loans, etc., could

be conducted. If this does not reveal an error, a home interview might be used or some other verification procedure. Further verification procedures--similar to those carried out by the DVU--could then be applied. At each step, the decision to continue if an error is not found would depend on cost-benefit considerations. Clearly, the order and type of reviews could be specified in a number of ways in an effort to find the optimal set of review procedures to be followed.

The advantage of this concept is its flexibility. The process can stop at a number of places, either because the error is found or because the cost of a further review is not justified. This flexibility should result in significant savings in the cost per review. Furthermore, the analysis of the effectiveness of different levels of review should give Medicaid administrators better insight into the potential for improving the review process whether or not the Error Prone Profile System is used.

CHAPTER III

MEASUREMENT OF THE COST OF A MEDICAID ERROR

CHAPTER III

MEASUREMENT OF THE COST OF A MEDICAID ERROR

ABSTRACT

In order to assess the merits of a corrective action that requires State resources, the expected dollar benefits of that corrective action should be measured accurately. In this Chapter, we show that estimation of the dollars potentially saved from a corrective action is much more complex than most observers realize. The major reason for this complexity is predicting the behavior of a recipient who is informed of ineligibility and removed from the rolls. For example, a recipient may quickly expend his excess resources and return to the rolls as a truly eligible case.

We show that the MEQC system estimates a parameter "dollars paid out to a case while it was eligible," which, though having a clear meaning in a legal and accounting sense, will always overstate the dollars that could be saved by eliminating errors. Thus, accurate estimates of the dollars potentially saved from eliminating eligibility errors are not readily available.

We explain the difference between dollars misspent and dollars potentially saved by corrective action, and illustrate with the empirical results of an approach utilized for the New Hampshire sample cases. We find that the dollars potentially saved from eliminating errors in cases with excess resources are as little as 40% of the dollars misspent on such cases. Such a difference is important not only for the evaluation of the Error Prone Profile System, but for any other type of corrective action as well.

A. WHY SHOULD WE KNOW THE COST OF A MEDICAID ELIGIBILITY ERROR?

The major purpose of the New Hampshire Demonstration Project is to develop an Error Prone Profile System that cost-effectively reduces the ineligibility rate in Medicaid. In other words, the benefits of the Error Prone Profile System should outweigh the cost associated with the system. The most important benefit of the system is the reduction in dollars that otherwise would have been paid out to ineligible (overpaid) cases. Thus, the most effective profiles are those which will result in the greatest possible savings to the Government (State and Federal) for a given cost. To select these profiles (or to implement any corrective action of significant cost), we must have an accurate means of measuring the expected savings.

Unnecessary costs in Medicaid are a growing concern: procedures for penalizing States with high error costs by disallowing Federal Medicaid funds are likely to be implemented soon as part of the MEQC system. States wishing to avoid these "fiscal disallowances" will have to implement corrective actions that reduce their error rates. To do so cost-effectively requires that an accurate means of evaluating error costs be developed.

In sum, the increasing scrutiny of government expenditures makes it desirable that officials know how much they will save by expending funds in a corrective action--whether the corrective action is an Error Prone Profile System, more intensive training for case technicians, or more clearly written policies. In the next section, we show why accurate estimates of the dollars saved through a corrective action have been elusive.

B. WHY DON'T WE KNOW THE COST OF A MEDICAID ERROR?

Estimating the cost of a Medicaid error is much more difficult than it might appear. At the time an error is made, there is virtually no way to assess its cost (or savings, if the error were discovered), because there is no way to predict the length of an error's persistence. Over time, for example, for a given error case, any of the following might occur:

- the recipient might voluntarily remove himself from the rolls;
- the error might be detected in the next routine redetermination; or
- the recipient might even die.

Even retrospectively, the cost of a Medicaid error is difficult to assess, because "cost" can be measured in different ways. As it now operates, and as it has been newly designed to operate (starting April, 1978), the MEQC system overestimates the dollars spent on Medicaid errors. The MEQC system samples cases from each State's Medicaid caseload every month. The sample cases are given a careful review to determine their eligibility status in that month. Later the claims for medical services generated by these cases in that month are totaled to determine the dollar consequences of errors. Every six months, the States report the results of their findings, including the estimated error rate, the estimated dollars paid out to ineligible (or overpaid) cases, and tabulations of the nature and cause of errors.

MEQC's definition of error dollars is <u>the dollars paid out to a case while it was ineligible</u>. From a legal standpoint, this definition has merit, for it is unambiguous and readily computed. Also, the MEQC system is more an accounting mechanism than a system designed for corrective action decisions. From an accounting perspective (which is retrospective), all dollars must have been spent either on eligible cases or ineligible cases.

In spite of these advantages, defining error dollars as total dollars paid to a case while ineligible oversimplifies the problem. If the error were detected, the total dollars paid to the case would not necessarily be the total dollars expended if the error is undetected. Particularly for cases where ineligibility is due to excess resources, removal of a case from the rolls may force the case to expend resources and render the case eligible. In such instances, the true savings from detecting errors is less than the total expended were the ineligible case to remain on the rolls.

Two examples illustrate how a person declared ineligible might quickly return to the rolls:

- The person, informed of ineligibility due to excess resources, may put money into a burial account, may spend money, or give it away to relatives and so reduce his countable resources to a level that restores Medicaid eligibility.

- The person with excess resources may be faced with high medical bills; these bills may deplete the case's resources to a point where, if the person reapplied, he would be eligible for Medicaid. Consider, for example, the following two cases:

- Case 1 has a $3000 operation in January and no medical expenses thereafter;

- Case 2 is in a nursing home costing $500 per month from January to June.

Assume both Case 1 and Case 2 are ineligible. If the errors were detected prior to January, Medicaid would save $3,000 on Case 1, and $500 per month on Case 2, unless the case reapplied in a subsequent month after putting excess resources in a burial account. Suppose, for example, Case 2 became eligible again in March. Medicaid would have saved the first $1,000, but not the next $2,000 for the March-June nursing home cost. The example illustrates two cases with the same expenses in a given period of time, yet the pattern of expenditures over that time period allows Medicaid to save $3,000 on one case but only $1,000 on the other case. Note that a corrective action plan aimed at avoiding the large one-time expenditure would be more effective under such circumstances.

These examples illustrate that, because a case declared ineligible can subsequently become eligible, the savings from detecting an error case are less than the dollars that would have been paid to the case had the error not been detected.

Based on this discussion, the Medicaid caseload can be divided into three distinct groups denoted A, B, and C as follows:

A - cases that are eligible;

B - cases that are ineligible, such that even if the errors are detected, they remain ineligible;

C - cases that are ineligible, but if the errors are detected, they can return to the rolls as truly eligible cases.

Now assume that the total Medicaid budget for benefits, \$D, is written as the sum of the dollars spent in a given year for each class above, that is,

$$\$D = \$A + \$B + \$C.$$

We might ask: How much could have been saved in a given year if all the errors had been detected? By definition, the \$B spent on Class B cases could have been saved. For the C cases, however, since some of them would have returned to the rolls during the year as eligible, only a portion of the \$C would have been saved. Thus, the dollars <u>paid</u> to ineligible cases were \$B+\$C. But the dollars <u>that could have been saved</u> from detecting all those errors are less than \$B+\$C. The difficulty in practice is knowing how many cases fall in class C, <u>and</u> predicting how these cases will actually behave after ineligibility is discovered.

C. <u>AN APPROACH TO MEASURING ERROR COSTS: EMPIRICAL RESULTS</u>

In order to provide some empirical evidence of the difference between dollars misspent and dollars potentially saved, we reexamined all the New Hampshire sample cases that were in error due to excess resources. An algorithm was developed which provided a systematic and consistent way of estimating the dollars potentially saved by detecting the error at the beginning of the period. The error dollars

associated with each case were then recomputed using this algorithm so that a direct comparison could be made between the dollars misspent and dollars that could have been saved.

1. The Algorithm

Exhibit III-1 illustrates the form used for this purpose. Each form (one form per case) contained a set of instructions which New Hampshire research staff followed to compute the dollars potentially saved. Since New Hampshire cases were reviewed for a six-month period of eligibility, the instructions allowed for the possibility that cases might be ineligible some months and eligible in others during the six-month period. Each of the form's instructions is detailed below:

1) Claims: in this row, the monthly claim amounts for services received are entered in the appropriate months. For most cases, the sum of these claim amounts represents the dollars misspent on the case.

2) Resources: in this row, the excess resources of the case for each month as determined during the eligibility review are entered. For months in which the excess resources are unknown, we assign the maximum excess resources the case has during the period. This tends to overstate the dollars that could be saved, although in practice it has little effect on the results.

3) Net Change: this row reflects the observed changes in the case's resources from one month to the next. For the first

Exhibit III-1

Review Number ____________

Eligibility Category _________

SAMPLE
NEW HAMPSHIRE

ERROR PRONE PROFILE DEMONSTRATION PROJECT

"DOLLARS POTENTIALLY SAVED" WORKSHEET

Item	Month 1	2	3	4	5	6	Total
1) Claims							*
2) Resources							N. A.
3) Net Change							N. A.
4) New Beginning Resources							N. A.
5) New Ending Resources							N. A.
6) Error Amount							**

Instructions

1) Claims: Enter monthly total claim amount for the case.
2) Resources: Enter the excess resources of the case as of the beginning of the month. For months in which information is not available, enter the maximum excess resources found for that case.
3) Net Change: Enter the change, positive or negative, in excess resources from the previous month. For example, if excess resources in month 2 are \$50 and in month 3 are \$30, entry for month 3 would be - \$20 (\$30 - \$50).
4) New Beginning Resources: Add the entry in 5) from the previous month to the entry in 3) for this month. [In the first month 4) = 2).]
5) New Ending Resources: If 4) is negative (or 0), entry in 5) is the same as the entry in 4). But, if 4) is positive, entry in 5) is given by subtracting 1) from 4).
6) Error Amount: If 4) is negative (or 0), enter 0. If 4) is positive, enter the claim amount 1).

---

*Total of row 1) entries.

**Total of row 6) entries.

month, the net change is zero since the case's resources prior to the review period are unknown.

4) <u>New Beginning Resources</u>: this row represents the resources of the particular month, assuming that the ineligibility of the case had been discovered prior to that month. Thus, new beginning resources are defined to be the sum of the case's resources at the end of the previous month (see 5) below) plus the net change in resources indicated in row 2) for this month. In month 1, new beginning resources are, of course, the same as the actual resources indicated in row 2) for month 1.

5) <u>New Ending Resources</u>: this row demonstrates the impact of declared ineligibility on a case's resources. That is, the case would have to pay the claim amount, hence depleting its resources by that amount. The algorithm is quite straightforward: if a case's beginning excess resources, as shown in row 4), are greater than zero, the case is ineligible. The case, therefore, would have to pay the claim amount shown in row 1) for that month. The ending resources are consequently given by subtracting the claim amount from the beginning resources. Alternately, if the beginning excess resources for the month (row 4)) are less than zero, the case is eligible. Thus, the case's resources would <u>not</u> be depleted by the claim amount--in this situation, then, the ending resources (row 5)) equal the beginning resources (row 4)).

6) <u>Error Amount</u>: the error amount is simply determined by examining row 4). If the entry in 4) is negative or 0, the case does not have excess resources that month and hence is eligible-- the error amount is zero. Conversely, if the entry in 4) is positive, the case has excess resources, is ineligible, and the error amount equals the claims amount for that month.

Thus, the instructions follow the concept described previously: if a case is declared ineligible, a person often must deplete his resources to pay medical bills. If the resources go below the allowable limit and the case becomes eligible, the subsequent claim dollars may not be in error.

The procedure is illustrated by an actual case, as shown in Exhibit III-2. This nursing home case had \$2,691.60 in claims over the six-month period. Since the case had excess resources over the entire period, the case was technically ineligible for the full amount of \$2,681.60, i.e., the dollars misspent were \$2,681.60. Suppose however that the error had been detected in month 1. According to the instructions, row 3) in month 1 is 0. Row 4) in month 1 equals row 2) and hence is \$48.28. Since row 4) is greater than zero, row 5) equals row 4) minus row 1), i.e., -\$411.32. The error amount, row 6), is equal to the claim amount (\$459.60) since row 4) was greater than zero.

Review Number ____________

Eligibility Category 10 OAA

NH

Exhibit III-2

NEW HAMPSHIRE

ERROR PRONE PROFILE DEMONSTRATION PROJECT

"DOLLARS POTENTIALLY SAVED" WORKSHEET

Item	Month						
	1	2	3	4	5	6	Total
1) Claims	459.60	421.60	459.60	440.60	459.60	440.60	2681.60 *
2) Resources	48.28	188.52	188.52	92.25	188.52	188.52	N. A.
3) Net Change	0	140.24	0	-96.27	96.27	0	N. A.
4) New Beginning Resources	48.28	-271.08	-271.08	-367.35	-271.08	-271.08	N. A.
5) New Ending Resources	-411.32	-271.08	-271.08	-367.35	-271.08	-271.08	N. A.
6) Error Amount	459.60	0	0	0	0	0	459.60 **

Instructions

1) Claims: Enter monthly total claim amount for the case.
2) Resources: Enter the excess resources of the case as of the beginning of the month. For months in which information is not available, enter the maximum excess resources found for that case.
3) Net Change: Enter the change, positive or negative, in excess resources from the previous month. For example, if excess resources in month 2 are $50 and in month 3 are $30, entry for month 3 would be - $20 ($30 - $50).
4) New Beginning Resources: Add the entry in 5) from the previous month to the entry in 3) for this month. [In the first month 4) = 2).]
5) New Ending Resources: If 4) is negative (or 0), entry in 5) is the same as the entry in 4). But, if 4) is positive, entry in 5) is given by subtracting 1) from 4).
6) Error Amount: If is negative (or 0), enter 0. If is positive, enter the claim amount 1).

---

*Total of row 1) entries.

**Total of row 6) entries.

Consider month 2. Row 3) is given by the net change in resources from month 1 to month 2, i.e., \$188.52 - \$48.28, or +\$140.24. According to the instructions, row 4) is given by row 5) from the previous month (-\$411.32) plus row 3) from this month (\$140.24), i.e., -\$271.08 (-\$411.32 + \$140.24). Since this is negative, row 5) for this month equals row 4), i.e., -\$271.08. Finally, since row 4) is negative, the error amount is zero (in fact, the case has beginning resources below the limit and hence is eligible). Continuing this algorithm through the remaining months, we see that the case's beginning excess resources (row 4)) never return to a positive figure; hence, the case remains eligible for the following months. The total error amount is, therefore, the sum of the monthly error amounts, that is, <u>\$459.60</u>, the amount that could have been saved had the error been detected during the first month. Since for this case the dollars misspent were computed to be <u>\$2,681.60</u>, the difference between dollars potentially saved and dollars misspent is substantial.

2. Major Results

The algorithm described above was applied to <u>every</u> case in the sample found ineligible due to excess resources. For these cases the total dollars misspent were \$113,822; total dollars potentially saved were \$46,525: about 41% of the dollars misspent. However, this percentage varied significantly by type of case:

- for the Adult Independent category, dollars potentially saved were 92% of the dollars misspent;
- for the Nursing Home cases, dollars potentially saved were 37% of the dollars misspent;
- for other cases, dollars potentially saved were essentially the same as dollars misspent.

The explanation for this variation is straightforward. Since for most adult independent cases the monthly claim amount is small relative to that for most nursing home cases, even after the case pays the claim, it will have resources above the limit and thus will remain ineligible. For nursing home cases, paying the monthly bill often reduces its resources so much that the case becomes eligible again.

In general, then, dollars misspent on nursing home cases ineligible due to excess resources tend to overstate the dollars potentially saved by a factor of three. For other cases, the difference between dollars misspent and dollars potentially saved is not so noticeable. However, because nursing home cases represent the <u>majority</u> of Medicaid dollars, the total dollars misspent on cases ineligible due to excess resources are, according to the algorithm, about 2-1/2 times the dollars that could be saved by detecting these errors before they occur.

D. SUMMARY AND CONCLUSIONS

The implications of this concept, that is, the difference between dollars misspent and dollars potentially saved, are quite important. First, the concept is crucial to the evaluation of cost effective

corrective actions, such as error prone profiles. Since error prone profiles are used to detect errors before they occur, the effectiveness of a profile depends upon the Medicaid dollars potentially saved by detecting the error, not the dollars misspent on the case. Because it is not cost-effective to detect cases technically in error which will soon return to the rolls as eligible, error prone profiles should be aimed at ineligible cases which would remain so after their ineligibility has been detected, i. e. , cases that are categorically ineligible or cases with exceptionally high resources.

The second major implication involves the Medicaid Eligibility Quality Control System, which provides estimates of the dollars misspent in Medicaid but does not estimate the dollars that could have been saved had all errors been eliminated. State and Federal officials may believe that dollars misspent are equivalent to dollars that could be saved. Dollars, however, are wasted only if they could have been saved. Dollars misspent means "dollars paid to an individual while he/she was ineligible," but is not a measure of the potential reduction in Medicaid expenditures had errors been detected. It follows, then, that quality control results can be used for corrective action plans only if the user recognizes this difference. Because the new MEQC system is based on a random sample of cases from the eligibility file each month, it is ideally suited to the routine generation of error prone profiles. However, if these profiles are

to be cost effective, the quality control findings should be interpreted in a new way.

CHAPTER IV

COMPARATIVE ANALYSIS OF DISTRICT OFFICE ERROR RATES

CHAPTER IV

COMPARATIVE ANALYSIS OF DISTRICT OFFICE ERROR RATES

ABSTRACT

In this Chapter, we describe our effort to explain the variation in error rates among District Offices. A survey of case technicians provided preliminary insight into factors associated with errors. The major effort, however, was an attempt to explain the variation in error rates according to certain office characteristics, such as workload, experience and education of the caseworkers, the quality of the office facility, office policies and procedures, and the rural-urban designation of the office.

Alone, none of the variables defining these characteristics showed a statistically significant relationship to error rates. However, by combining several variables in a multiple regression equation, we found that over 98% of the variation in agency error rates could be explained.

Thus, by measuring a set of characteristics describing a given District Office, we can predict that office's error rate. This provides a basis for corrective action procedures: by altering certain office characteristics, we can indirectly control error rates.

A. CASE TECHNICIAN QUESTIONNAIRE

Examination of the sample cases reviewed during this Project shows the Medicaid error rate to vary among District Offices, ranging

from 6.5% in Keene to 30.5% in Portsmouth. Although some of this variation is no doubt due to chance, certain characteristics of the District Offices were thought to explain much of the differences in error rates.

As a preliminary step in our comparative analysis, case technicians were questioned in detail about <u>their</u> opinions on the major factors responsible for errors. The questionnaires were completed by August, 1976. (A copy of the questionnaire is included in Appendix D.) Unfortunately, the case technicians rarely completed the questionnaires in full; furthermore, the questionnaires for Keene, the District Office with the lowest overall error rate, were not available.

Exhibit IV-1 presents a tabulation of their responses. Although each factor was considered important by at least one technician, several were predominant:

- <u>Recipients do not report needed information accurately or on time</u>: 86% of the case technicians responding believed this to be a moderate cause (30% to 60% of all errors) or major cause (more than 60%) of errors. Thus, case technicians think that most of the blame for errors lies with the recipient.

- <u>Department policies are unclear</u>: 55% of the case technicians believe this to be a moderate to major cause of errors. Note that lack of direction from administration (see a. and b.) is <u>not</u> considered a cause of error. Instead, it is the clarity of direction that is important.

- <u>Caseload too large or staff insufficient</u>: 60% of the case technicians believe this to be a moderate or major cause of errors.

- <u>Orientation training is inadequate</u>: 52% believe this to be a moderate or major cause of error.

Exhibit IV-1

FACTORS CONTRIBUTING TO ERRORS RATED BY CASE TECHNICIANS

		Number of Responses				
		0*	1	2*	3	No response
a.	Lack of direction from state office administration.	32	34	24	7	17
b.	Lack of direction from District Office administration	56	30	8	3	17
c.	Recipients do not report needed information accurately or on time	3	11	38	49	13
d.	Department policies are unclear	7	38	39	15	15
e.	Inadequate supervision is provided	62	18	8	8	15
f.	Case technicians are not motivated to determine eligibility correctly	62	20	7	8	18
g.	Pay is too low to motivate case technicians	38	22	19	18	17
h.	Case technicians give recipients the benefit of the doubt too often	25	44	21	6	18
i.	Case technicians do not thoroughly verify information provided by recipients	36	51	10	1	16
j.	Case technicians do not put through needed budget changes on time	43	40	10	4	17
k.	The caseload is too large or the staff is insufficient	20	19	14	44	17
l.	Orientation training is inadequate	23	22	25	24	20
m.	In-service training provided too infrequently	27	27	22	20	18
n.	Staff meetings held too infrequently	61	25	55	5	18
o.	Physical condition of building is inadequate	48	17	8	22	19
**	Disturbance by phone	0	0	0	1	n/a

0 = not a cause at all (less than 10% of errors)
1 = a slight cause (between 10% and 30% of errors)
2 = moderate cause (between 30% and 60% of errors)
3 = high cause (greater than 60% of errors)

** Write-in response.

Thus, case technicians regard the way recipients report information, the lack of clear direction and training, and the workload to be the chief factors contributing to error. Interestingly, factors which reflect the case technicians' role in the eligibility determination process are usually not considered major causes by the majority of case technicians:

- lack of motivation (f. and g.);
- recipients given benefit of doubt (h.);
- case technicians not verifying information thoroughly (i.);
- case technicians not putting budget through on time (j.).

The case technician questionnaire, therefore, represents one approach to the analysis of error rates. The viewpoint represented, of course, has its own bias, and the questionnaire's findings must be weighed accordingly. The remainder of this Chapter describes our further efforts to explain the variation in error rates among District Offices.

B. COMPARATIVE ANALYSIS

It was decided to approach the comparison of District Offices with statistical methodologies. The purpose of this analysis was to establish statistical relationships, if any, between characteristics of District Offices and error rates. Not only would such relationships help explain the present error rate variation, but they would also suggest areas of focus for specific corrective actions.

The following general categories of District Office characteristics were selected for the comparative analysis:

- workload characteristics;
- case technician characteristics;
- characteristics of the office facility;
- office policies and procedures;
- urban-rural designation.

For each of these categories except the last, several explanatory variables were defined. First, each variable was correlated with both agency error rate and overall error rate. Then several variables were selected for inclusion in multiple regression equations.

1. Data Sources

The data sources for the variables used in this analysis were:

- the sample of 758 cases reviewed in the First Year;
- case technician questionnaires;
- data collected on workload and administrative indices over a six month period--July to December, 1976; and
- office organization, staffing, and facility data assembled for each District Office.

These data sources presented several problems. First, the administrative and staffing variables were collected as rates and percentages without retaining the numerator and denominator values. Second, different data items were collected for different groupings of District Offices. For example, certain data items are available for both

Woodsville and Ashland but other items are available only for these two offices combined. In addition, the case technicians' questionnaires were incomplete, as mentioned earlier. These problems reflect the usual difficulties in obtaining uniform and complete data from a number of sources but do not significantly weaken the analysis.

From these data sources we developed five categories of variables characterizing District Offices.

2. Definitions

a. Workload Characteristics

We constructed five workload variables as follows:

- workload index;
- number of overdue redeterminations;
- number of backlog applications;
- overdue index;
- backlog index.

We defined a workload index as follows:

$$\text{workload index} = \frac{\text{total number of cases processed}}{\text{payroll}} \times 100$$

This index measures workload in terms of the number of cases processed for each \$100 spent on payroll, both measured over a six month period. Since the index does not differentiate among case types, it is only a general measure.

We also defined indices relating the number of overdue redeterminations and backlog applications to the overall workload, as follows:

$$\text{overdue index} = \frac{\text{number of overdue redeterminations}}{\text{workload index}}$$

$$\text{backlog index} = \frac{\text{number of backlog applications}}{\text{workload index}}$$

b. Case Technician Characteristics

To test the relationship between office error rates and the background, training and experience of the caseworkers, we included the following variables obtained for each office from the case technician questionnaire:

- average years of experience;
- average years of education;
- average absentee rate per month.

c. Characteristics of the Office Facility

Data on facility variation were assembled from the "Comparative Analysis of District Office" form shown in Appendix E. These data items include:

- the number of case technicians per room;
- the percentage of private interviews;
- case technicians' access to calculators and manuals;
- availability of forms and office supplies.

In addition, a subjective rating of one (better than average facility level) to three (lower than average facility level) was assigned to each facility based upon its responses to the facility items in the questionnaire. This rating was included as a facility variable.

d. Office Policies and Procedures

Since administrative and functional differences among District Offices may indirectly contribute to error rates by impacting on the efficiency and morale of the office staff, the following data items were included in our analysis:

- case assignment method;
- number of case technicians;
- specialization of case technicians;
- division responsible for redetermination scheduling;
- frequency with which case technicians leave office to obtain verification;
- sources contacted by phone.

e. Urban-Rural Designation

As we have seen, the categorization of District Offices as urban or rural does have an impact on such items as the effectiveness of routine reviews and the average length of time an error is on the rolls. Therefore, we might expect this categorization also to explain variations in error rates.

3. Univariate Analysis

a. Workload Characteristics

Exhibit IV-2 shows the workload index, backlog index and overdue index for each District Office along with the overall error rate and agency error rate. The following observations can be made about each variable:

Exhibit IV-2

TABULATION OF ERROR RATES AND WORKLOAD CHARACTERISTICS FOR EACH DISTRICT OFFICE SORTED BY OVERALL ERROR RATE

District Office	Overall Error Rate	Agency Error Rate	Average # of Backlog per Month	Workload Index	Average # of Overdue per Month	Backlog Index	Overdue Index
Keene	6.7	4.4	9.2	10.73	25.2	0.85	2.35
Woodsville	9.5	7.1	4.0	0.00	36.3	0.00	0.00
Woodsville & Ashland	11.8	7.8	6.3	9.13	38.8	0.69	4.25
Conway	12.0	8.0	5.2	5.63	7.3	0.92	1.30
Berlin	15.1	9.4	11.3	9.80	25.3	1.16	2.58
Claremont	15.4	12.8	9.2	7.83	143.2	1.17	18.29
Ashland	22.2	11.1	2.3	0.00	2.5	0.00	0.00
Dover	23.2	11.6	14.2	7.03	22.0	2.02	3.13
Nashua	24.1	14.8	25.2	10.73	300.3	2.35	27.99
Rochester	25.0	0.0	9.0	19.86	38.0	0.45	1.91
Salem	26.9	15.4	1.5	17.05	22.5	0.09	1.32
Laconia	27.5	12.5	1.8	8.02	7.5	0.23	0.94
Manchester	27.9	16.9	15.7	10.70	36.3	1.46	3.39
Concord	28.4	20.3	7.2	8.40	304.8	0.85	36.29
Portsmouth	30.5	14.7	1.3	9.97	63.7	0.13	6.39
Franklin	42.9	14.3	1.3	13.37	0.0	0.10	0.00

- although the average number of applications backlogged each month exhibits a wide variation, the backlog index is relatively stable;
- the workload index shows more stability, with over half the District Offices having values in the 7 to 10 range;
- both the average number of overdue redeterminations and the overdue index show great variation. In particular, Claremont (18.29), Nashua (27.99) and Concord (36.29) exhibit values much higher than the others.

Scatter diagrams of each independent variable against the two dependent variables--overall error rate and agency error rate--are found in Appendix F. Although the scatter diagrams are a convenient means for a District Office to compare its position relative to all other offices, they do not reveal any obvious relationship between the independent and dependent variables.

b. Case Technician Characteristics

Exhibit IV-3 shows the three case technician variables--average absentee rate per month, average years of experience and average years education--along with overall and agency error rate, for each District Office. The offices are listed in ascending order of overall error rate. Exhibit IV-4 represents the same data in order of agency error rate. These data tables, although allowing comparisons among District Offices, do not reveal any clear patterns of correlation between case technician characteristics and error rates.

c. Characteristics of Office Facility

Exhibit IV-5 provides a tabulation of the five District Office facility characteristics, in ascending order of overall error rate. Several observations about the table can be made.

Exhibit IV-3

TABULATION OF ERROR RATES AND STAFFING VARIABLES BY DISTRICT OFFICES SORTED ACCORDING TO OVERALL ERROR RATES

District Office	Overall Error Rate	Agency Error Rate	Average Absentee rate/month	Average Years Experience	Average Years Education
KEENE	6.70	4.4	9.32	.	.
WOODSVIL	9.50	7.1	.	3.40	16.56
WDS+ASH	11.76	7.8	7.92	.	.
CONWAY	12.00	8.0	10.87	2.25	15.00
BERLIN	15.10	9.4	8.13	3.46	13.14
CLAREMON	15.40	12.8	10.51	1.66	13.94
ASHLAND	22.20	11.1	.	1.00	16.00
DOVER	23.20	11.6	10.62	2.36	14.45
NASHUA	24.10	14.8	9.81	0.90	15.21
ROCHESTE	25.00	0.0	8.69	1.56	14.25
SALEM	26.90	15.4	9.52	1.57	14.79
LACONIA	27.50	12.5	12.18	3.00	13.19
MANCHSTR	27.90	16.9	10.68	2.80	14.07
CONCORD	28.40	20.3	10.28	2.88	13.75
PORTSMOU	30.50	14.7	12.12	1.75	14.18
FRANKLIN	42.90	14.3	10.91	2.67	15.00

Exhibit IV-4

TABULATION OF ERROR RATES AND STAFFING VARIABLES BY DISTRICT OFFICES SORTED ACCORDING TO AGENCY ERROR RATE

District Office	Overall Error Rate	Agency Error Rate	Average Absentee rate/month	Average Years Experience	Average Years Education
ROCHESTE	25.00	0.0	8.69	1.56	14.25
KEENE	6.70	4.4	9.32	.	.
WOODSVIL	9.50	7.1	.	3.40	16.56
WDS+ASH	11.76	7.8	7.92	.	.
CONWAY	12.00	8.0	10.87	2.25	15.00
BERLIN	15.10	9.4	8.13	3.46	13.14
ASHLAND	22.20	11.1	.	1.00	16.00
DOVER	23.20	11.6	10.62	2.36	14.45
LACONIA	27.50	12.5	12.18	3.00	13.19
CLAREMON	15.40	12.8	10.51	1.66	13.94
FRANKLIN	42.90	14.3	10.91	2.67	15.00
PORTSMOU	30.50	14.7	12.12	1.75	14.18
NASHUA	24.10	14.8	9.81	0.90	15.21
SALEM	26.90	15.4	9.52	1.57	14.79
MANCHSTR	27.90	16.9	10.68	2.80	14.07
CONCORD	28.40	20.3	10.28	2.88	13.75

Exhibit IV-5

TABULATION OF RESPONSES OF FACILITY VARIABLES AND THE ASSIGNED FACILITY RATING SORTED BY OVERALL ERROR RATES

District Office	Overall Error Rate	Agency Error Rate	Facility Rating	Average Number of Case Technicians Per Room	Case Technicians with Updated Manuals	Availability of Forms & Supplies	% of Private Interviews
Keene	6.7	4.4	2	5	100%, updated in his own area	1	0
Woodsville & Ashland	11.8	7.8	1	4	100%	2	100%
Conway	12.0	8.0	1	4	100%	2	100
Berlin	15.1	9.4	2	2	50%-75%	3	100
Claremont	15.4	12.8	1	3	80%	1	90
Dover	23.2	11.6	2	8	100%	1	100
Nashua	24.1	14.8	3	2	50%	1	10
Salem	26.9	15.4	1	4.5	100%	1	95
Laconia	27.5	12.5	2	8	100% have manuals but are not updated	1	5
Manchester	27.9	16.9	3	4	17%	3	100
Concord	28.4	20.3	2	3.5	100%	2	few
Portsmouth	30.5	14.7	1	2.6	100%, manuals updated at meetings	3	100

1=readily available, 2=shortage occasionally encountered, 3=shortage frequently encountered.

- In general, there is little variation inherent in each independent variable. For example, all but two of the District Offices have between 2 and 5 case technicians per room; all but four District Offices have manuals for 100% of the case technicians.

- The percentage of applications for which private interviews are conducted is clustered at two levels: four District Offices show a value below 10%; the remaining District Offices show values above 90%.

- No significant correlation is found between any individual variable and the error rates. Even the facility ratings appear randomly distributed among the District Offices, although none of the top six offices has a rating of 3 (worse than average). The worst error rate is associated with a facility rating of 1 (above average).

d. <u>Office Procedures and Policies</u>

Exhibit IV-6 tabulates various administrative and operational characteristics. The top section lists responses for District Offices with low error rates; the bottom section, high error rates. No clustering of responses is evident: patterns of case assignment, specialization of case technicians, and sources of contact are similar for both groups of District Offices.

Exhibit IV-7 presents data on office procedures. Specifically, the exhibit tabulates the mean percentages of workload determined through the implementation of various interviewing procedures. According to these data, there are no significant differences in the distribution of workload by interviewing approach between low and high error rate District Offices.

Exhibit IV-6

VARIATION OF OFFICE PROCEDURE BY DISTRICT OFFICES

District Office		Overall Error Rate	Case assignment method A=Alpa., G=Geog., R=Rotate	Assigned by S=Supervisor C=Clerk	# of case technicians in the District Office	Specialization among case technicians	Division responsible for redetermination scheduling	Frequency of C. T. leaving office to obtain verification	Sources Contacted by Phone*							
									Employer/ Unemployment	Local officials/ Probation/Courts	Landlord/Rent	Bank	Utilities	Nursing Home	Social Security	Registry
Berlin	LOW ERROR RATES	17.0	R	C	7	yes	A. P.	rare	y	-	-	y	-	y	y	-
Claremont		15.4	G	C	10	yes	--	freq	-	y	-	y	-	-	-	y
Conway		12.0	A	S	3	no	A. P.	never	y	y	y	y	-	-	-	-
Keene		6.7	A	C	9	yes	intake A. P.	rare	y	-	-	-	y	-	-	-
Woodsville		11.8	A	C	10	no	I&R	--	y	y	-	-	-	-	-	-
Concord	HIGH ERROR RATES	28.4	G	S	16	yes	I&R	--	y	y	-	-	-	y	-	-
Dover		23.4	A	C	16	yes	I&R	rare	y	-	y	-	y	-	-	-
Laconia		27.5	A	C	16	yes	I&R	never	-	-	y	-	y	-	y	-
Manchester		27.9	A	C	34	yes	I&R	rare	y	y	y	-	-	y	-	-
Nashua		27.1	A	S/C	13	yes	--	rare	-	-	-	-	-	-	-	-
Portsmouth		30.5	A	C	19	yes	I&R	never	-	y	y	y	-	-	-	y
Salem		27.0	A	C	9	no	--	rare	y	-	y	y	-	-	-	-

* y=listed as a source
-=no mention

Exhibit IV-7

TABULATION OF AVERAGE PERCENTAGES OF WORKLOAD DETERMINED THROUGH THE IMPLEMENTATION OF VARIOUS TYPES OF INTERVIEWING APPROACHES

		Applications					Redeterminations				
District Office		# of Responses	Face-to-face	Phone	Mail	Comb.	# of Responses	Face-to-face	Phone	Mail	Comb.
Ashland	LOW ERROR RATES	2	25.0	2.5	57.5	15.0	2	77.5	0.0	20.0	2.5
Berlin		6	58.3	15.8	10.8	15.0	6	59.2	11.8	20.7	8.3
Claremont		9	69.4	9.9	3.6	17.2	9	78.7	9.0	5.3	7.0
Franklin		1	70.0	10.0	10.0	10.0	2	99.0	0.0	0.0	1.0
Conway		4	80.0	2.5	2.5	15.0	4	65.0	5.0	12.5	17.5
Portsmouth		8	59.4	4.5	9.5	26.6	14	83.6	6.1	7.2	3.1
Petersb'rgh		3	87.0	1.0	1.0	11.0	3	87.0	1.0	1.0	11.0
Woodsville		6	83.2	0.2	0.0	16.7	9	91.9	2.1	3.0	3.0
Concord	HIGH ERROR RATES	1	60.0	15.0	25.0	0.0	7	70.0	7.6	21.7	0.7
Dover		9	72.0	4.8	11.9	22.2	8	70.0	4.1	14.0	11.9
Laconia		8	90.0	0.9	0.4	8.1	8	90.4	0.6	0.3	8.8
Nashua		10	79.0	6.7	4.0	10.3	9	83.9	4.9	4.2	7.0
Rochester		4	75.0	2.5	2.5	20.0	4	81.3	2.5	2.5	13.8
Salem		7	95.7	2.1	2.1	0.0	7	68.0	1.7	26.0	4.3
Manchester		5	35.0	21.0	15.0	29.0	8	59.1	11.0	11.1	18.8

e. Urban-Rural Designation

Exhibit IV-8 shows the District Offices, ranked first in order of overall error rate, then in order of agency error rate, according to the urban-rural designation.

The exhibit shows that the seven District Offices with the lowest overall error rates are all rural. Laconia and Franklin are the only rural offices with an error rate above the Statewide average. Although the difference in error rates between urban and rural offices is not statistically significant, this may be attributed to the Franklin office which is rural yet has the highest error rate.

From the viewpoint of corrective action, of course, it is of minimal value to know that rural offices tend to have a lower error rate since the designation is not controllable. Although the differences between rural and urban facilities might be analyzed in greater depth, such analysis is beyond the scope of this Project.

4. Multivariate Analysis

Since no clear patterns of correlation between any one variable and District Office error rates were evident, a multivariate approach was adopted in an effort to explain the variation among error rates. The particular approach selected was multiple regression analysis.

Exhibit IV-8

URBAN-RURAL DESIGNATICN OF DISTRICT OFFICES SORTED BY OVERALL ERROR RATE AND AGENCY ERROR RATE

District Office	Rural/Urban	Overall Error Rate	Agency Error Rate
KEENE	R	6.70	4.4
WOODSVIL	R	9.50	7.1
WDS+ASH	R	11.76	7.8
CONWAY	R	12.00	8.0
BERLIN	R	15.10	9.4
CLAREMON	R	15.40	12.8
ASHLAND	R	22.20	11.1
DOVER	U	23.20	11.6
NASHUA	U	24.10	14.8
ROCHESTE	U	25.00	0.0
SALEM	U	26.90	15.4
LACONIA	R	27.50	12.5
MANCHSTR	U	27.90	16.9
CONCORD	U	28.40	20.3
PORTSMOU	U	30.50	14.7
FRANKLIN	R	42.90	14.3

District Office	Rural/Urban	Overall Error Rate	Agency Error Rate
ROCHESTE	U	25.00	0.0
KEENE	R	6.70	4.4
WOODSVIL	R	9.50	7.1
WDS+ASH	R	11.76	7.8
CONWAY	R	12.00	8.0
BERLIN	R	15.10	9.4
ASHLAND	R	22.20	11.1
DOVER	U	23.20	11.6
LACONIA	R	27.50	12.5
CLAREMON	R	15.40	12.8
FRANKLIN	R	42.90	14.3
PORTSMOU	U	30.50	14.7
NASHUA	U	24.10	14.8
SALEM	U	26.90	15.4
MANCHSTR	U	27.90	16.9
CONCORD	U	28.40	20.3

Multiple regression analysis is a technique that fits equations of the form:

$$Y = B_0 + B_1 X_1 + . . . + B_k X_k$$

where:

- Y is the dependent variable, the variable to be explained or predicted in terms of the independent variables;
- X's are the independent variables;
- B's are coefficients to be estimated in order that the sum $B_0 + B_1 X_1 + . . . + B_k X_k$ best predicts Y (B_0 is known as the intercept).

The particular uses of multiple regression are:

- to find the best linear prediction equation and evaluate its prediction accuracy;
- to evaluate the contribution of certain variables holding other variables constant;
- to find structural relationships and provide explanations for seemingly complex multivariate relationship.

As independent variables, nine of the variables developed for the comparative analysis were selected as suitable: all five workload variables, all three case technician variables, and one facility variable, as follows:

- number of backlog applications;
- number of overdue redeterminations;
- workload index;
- backlog index;
- overdue index;

- case technician absentee rate;
- average number of years experience;
- average number of years education;
- facility rating.

As a preliminary step, each pair of variables was correlated. Exhibit IV-9 presents the correlation matrices interrelating the variables, the first using the number of overdue redeterminations and backlog applications as variables, the second using the backlog index and overdue index.

The second line of each cell shows the probability of observing the given correlation, assuming there is no actual correlation between the variables. If the probability is less than 0. 10, we reject the hypothesis that there is no correlation. According to this criterion, very few correlations are significant. For example, for the first matrix, only the following relationships are noteworthy:

- between total error and agency error--0. 57451;
- between total error and the absentee rate--0. 49817;
- between agency error and number of overdue redeterminations--0. 47753;
- between agency error and the absentee rate--0. 49043;
- between backlog applications and overdue redeterminations--0. 52335.

Similar results can be observed in the second matrix. Thus, there are very few significant correlations.

Exhibit IV-9

CORRELATION MATRIX OF DISTRICT OFFICE CHARACTERISTICS

(NUMBER OF OVERDUE REDETERMINATIONS AND BACKLOG APPLICATIONS USED)

PEARSON CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	ERROR	AGNCY_ER	BACKLOG	WORKLOAD	OVERDUE	ABSENTEE	EXPERNCE	EDUCATN	FACILITS
ERROR	1.00000	0.57451	-0.14143	0.34838	0.10075	0.49817	-0.11563	-0.21005	0.28180
TOTAL ERROR	0.0000	0.0199	0.6013	0.2222	0.7104	0.0698	0.6939	0.4711	0.3749
	16	16	16	14	16	14	14	14	12
AGNCY_ER	0.57451	1.00000	0.06049	-0.28802	0.47753	0.49043	0.03611	-0.20912	0.28536
AGENCY ERROR	0.0199	0.0000	0.8239	0.3180	0.0614	0.0750	0.9025	0.4731	0.3686
	16	16	16	14	16	14	14	14	12
BACKLOG	-0.14143	0.06049	1.00000	-0.11070	0.52355	-0.28524	-0.17623	-0.10516	0.78810
	0.6013	0.8239	0.0000	0.7064	0.0374	0.3229	0.5467	0.7205	0.0023
	16	16	16	14	16	14	14	14	12
WORKLOAD	0.34838	-0.28802	-0.11070	1.00000	-0.14756	-0.36116	-0.35822	0.21829	0.00924
	0.2222	0.3180	0.7064	0.0000	0.6147	0.2045	0.2529	0.4955	0.9785
	14	14	14	14	14	14	12	12	11
OVERDUE	0.10075	0.47753	0.52355	-0.14756	1.00000	-0.01356	-0.22621	-0.10311	0.34602
	0.7104	0.0614	0.0374	0.6147	0.0000	0.9633	0.4368	0.7258	0.2706
	16	16	16	14	16	14	14	14	12
ABSENTEE	0.49817	0.49043	-0.28524	-0.36116	-0.01356	1.00000	0.05494	0.02482	-0.20262
	0.0698	0.0750	0.3229	0.2045	0.9633	0.0000	0.8653	0.9390	0.5502
	14	14	14	14	14	14	12	12	11
EXPERNCE	-0.11563	0.03611	-0.17623	-0.35822	-0.22621	0.05494	1.00000	-0.29358	0.02609
MEAN YEARS OF CASE TECHNICIAN EXPERIENCE	0.6939	0.9025	0.5467	0.2529	0.4368	0.8653	0.0000	0.3083	0.9393
	14	14	14	12	14	12	14	14	11
EDUCATN	-0.21005	-0.20912	-0.10516	0.21829	-0.10311	0.02482	-0.29358	1.00000	-0.26151
MEAN YEARS OF CASE TECHNICIAN EDUCATION	0.4711	0.4731	0.7205	0.4955	0.7258	0.9390	0.3083	0.0000	0.4373
	14	14	14	12	14	12	14	14	11
FACILITS	0.28180	0.28536	0.78810	0.00924	0.34602	-0.20262	0.02609	-0.26151	1.00000
	0.3749	0.3686	0.0023	0.9785	0.2706	0.5502	0.9393	0.4373	0.0000
	12	12	12	11	12	11	11	11	12

CORRELATION MATRIX OF DISTRICT OFFICE CHARACTERISTICS

(BACKLOG INDEX AND OVERDUE INDEX USED)

PEARSON CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	ERROR	AGNCY_ER	BKLG_IND	WORKLOAD	OVRD_IND	ABSENTEE	EXPERNCE	EDUCATN	FACILITS
ERROR	1.00000	0.57451	-0.29651	0.34838	0.05840	0.49817	-0.11563	-0.21005	0.28180
TOTAL ERROR	0.0000	0.0199	0.3033	0.2222	0.8428	0.0698	0.6939	0.4711	0.3749
	16	16	14	14	14	14	14	14	12
AGNCY_ER	0.57451	1.00000	0.10309	-0.28802	0.51335	0.49043	0.03611	-0.20912	0.28536
AGENCY ERROR	0.0199	0.0000	0.7258	0.3180	0.0605	0.0750	0.9025	0.4731	0.3686
	16	16	14	14	14	14	14	14	12
BKLG_IND	-0.29651	0.10309	1.00000	-0.39034	0.41074	-0.16045	-0.15752	0.15903	0.64576
	0.3033	0.7258	0.0000	0.1676	0.1446	0.5837	0.6249	0.6215	0.0319
	14	14	14	14	14	14	12	12	11
WORKLOAD	0.34838	-0.28802	-0.39034	1.00000	-0.22999	-0.36116	-0.35822	0.21829	0.00924
	0.2222	0.3180	0.1676	0.0000	0.4289	0.2045	0.2529	0.4955	0.9785
	14	14	14	14	14	14	12	12	11
OVRD_IND	0.05840	0.51335	0.41074	-0.22999	1.00000	0.02319	-0.23706	0.00781	0.24748
	0.8428	0.0605	0.1446	0.4289	0.0000	0.9373	0.4582	0.9808	0.4631
	14	14	14	14	14	14	12	12	11
ABSENTEE	0.49817	0.49043	-0.16045	-0.36116	0.02319	1.00000	0.05494	0.02482	-0.20262
	0.0698	0.0750	0.5837	0.2045	0.9373	0.0000	0.8653	0.9390	0.5502
	14	14	14	14	14	14	12	12	11
EXPERNCE	-0.11563	0.03611	-0.15752	-0.35822	-0.23706	0.05494	1.00000	-0.29358	0.02609
MEAN YEARS OF CASE TECHNICIAN EXPERIENCE	0.6939	0.9025	0.6249	0.2529	0.4582	0.8653	0.0000	0.3083	0.9393
	14	14	12	12	12	12	14	14	11
EDUCATN	-0.21005	-0.20912	0.15903	0.21829	0.00781	0.02482	-0.29358	1.00000	-0.26151
MEAN YEARS OF CASE TECHNICIAN EDUCATION	0.4711	0.4731	0.6215	0.4955	0.9808	0.9390	0.3083	0.0000	0.4373
	14	14	12	12	12	12	14	14	11
FACILITS	0.28180	0.28536	0.64576	0.00924	0.24748	-0.20262	0.02609	-0.26151	1.00000
	0.3749	0.3686	0.0319	0.9785	0.4631	0.5502	0.9393	0.4373	0.0000
	12	12	11	11	11	11	11	11	12

For purposes of multiple regression analysis, the lack of inter-correlations is advantageous for it allows the algorithm to separate the effects of each variable. That is, if the correlation between two variables is high, it may be difficult to determine the separate impact of each variable on the dependent variable of interest. In general, two variables with high correlation should not be used together in a regression equation.

Four multiple regression equations were developed. In two, over-all error rate was the dependent variable; in two, the agency error rate. Each equation had 7 independent variables: the facility rating, the three case technician variables, the workload index, and either the backlog and overdue number or the backlog and overdue indices. These equations are presented in Exhibits IV-10 through IV-13. The estimated coefficients (B's) are found in the column headed "ESTIMATE". Other summary statistics of interest are the following:

- "R-SQUARE"--represents the proportion of the variation in District Office error rates explained by the equation.
- "PR > F" (enclosed in) represents the probability of observing a value of "R-SQUARE" that high by chance alone.
- "PR>F" is used for testing the significance of individual variables. Values below 0.10 suggest that the variable is significant.

Although the R-SQUARE of all four equations is high (over 0.90), only the latter two regressions are significant. Regression three is the most successful equation:

Exhibit IV-10

REGRESSION ANALYSIS RESULTS 1

Dependent Variable: Overall error rate

Independent Variables: Number of backlog applications
Number of overdue redeterminations
Workload index
Absentee rate
Case technician experience and education
Office facility rating

GENERAL LINEAR MODELS PROCEDURE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	7	349.53319498	49.93331357	2.65	0.3011	0.902720	18.7668
ERROR	2	37.66680502	18.83340251		STD DEV		ERROR MEAN
CORRECTED TOTAL	9	387.20000000			4.33974683		23.10000000

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
BACKLOG	1	5.84505597	0.31	0.6335	1	9.22913718	0.49	0.5564
WORKLOAD	1	70.27650398	3.73	0.1931	1	62.47132307	3.32	0.2102
OVERDUE	1	27.82415657	1.48	0.3482	1	45.91517193	2.44	0.2588
ABSENTEE	1	157.35237781	8.35	0.1017	1	58.70336529	3.12	0.2195
EXPERNCE	1	82.12540387	4.36	0.1720	1	20.64625523	1.10	0.4050
EDUCATN	1	1.14073877	0.06	0.8286	1	3.13291506	0.17	0.7229
FACILITS	1	4.96895802	0.26	0.6586	1	4.96895802	0.26	0.6586

PARAMETER	ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT	-135.83239426	-1.20	0.3521	112.92244572
BACKLOG	0.91680802	0.70	0.5564	1.30967111
WORKLOAD	2.97383128	1.82	0.2102	1.63282773
OVERDUE	0.03325726	1.56	0.2588	0.02129967
ABSENTEE	7.99594129	1.77	0.2195	4.52900178
EXPERNCE	10.26771786	1.05	0.4050	9.80658224
EDUCATN	1.57474234	0.41	0.7229	3.86099811
FACILITS	-5.68647189	-0.51	0.6586	11.07068839

Exhibit IV-11

REGRESSION ANALYSIS RESULTS 2

Dependent Variable: Overall error rate

Independent Variables: Backlog index
Overdue index
Workload index
Absentee rate
Case technician experience and education
Office facility rating

GENERAL LINEAR MODELS PROCEDURE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	7	354.59484336	50.65640619	3.11	0.2650	0.915792	17.4790
ERROR	2	32.60515664	16.30257832		STD DEV		ERROR MEAN
CORRECTED TOTAL	9	387.20000000			4.03764515		23.10000000

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
BKLG_IND	1	27.29813166	1.67	0.3249	1	13.90744289	0.85	0.4532
WORKLOAD	1	54.12525110	3.32	0.2100	1	93.36662804	5.73	0.1391
OVRD_IND	1	25.64827992	1.57	0.3365	1	52.83204998	3.24	0.2136
ABSENTEE	1	156.25833124	9.58	0.0904	1	115.64842994	7.09	0.1168
EXPERNCE	1	88.84462754	5.45	0.1447	1	30.17053304	1.85	0.3067
EDUCATN	1	0.24850295	0.02	0.9130	1	0.22657696	0.01	0.9169
FACILITS	1	2.17171897	0.13	0.7501	1	2.17171897	0.13	0.7501

PARAMETER	ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT	-106.13981641	-1.45	0.2838	73.12536270
BKLG_IND	5.92495668	0.92	0.4532	6.41489695
WORKLOAD	2.95025240	2.39	0.1391	1.23279675
OVRD_IND	0.26280225	1.80	0.2136	0.14598509
ABSENTEE	7.06008372	2.66	0.1168	2.65074608
EXPERNCE	6.97932659	1.36	0.3067	5.13038760
EDUCATN	0.40702383	0.12	0.9169	3.45255111
FACILITS	-1.74788677	-0.36	0.7501	4.78894260

Exhibit IV-12

REGRESSION ANALYSIS RESULTS 3

Dependent Variable: Agency error rate

Independent Variables: Number of backlog applications
Number of overdue redeterminations
Workload index
Absentee rate
Case technician experience and education
Office facility rating

GENERAL LINEAR MODELS PROCEDURE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	7	114.73391057	16.39055865	18.52	0.0522	0.984007	6.8971
ERROR	2	1.77000943	0.88504471		STD DEV		AGNCY_ER MEAN
CORRECTED TOTAL	9	116.50400000			0.94076815		13.64000000

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
BACKLOG	1	0.50209399	0.57	0.5299	1	12.99607110	14.60	0.0619
WORKLOAD	1	19.35542677	21.07	0.0428	1	34.99378506	39.54	0.0244
OVERDUE	1	47.26769380	53.41	0.0182	1	65.51975319	74.03	0.0132
ABSENTEE	1	12.18624443	13.77	0.0656	1	27.39718613	30.96	0.0308
EXPERNCE	1	21.46198391	24.25	0.0389	1	22.42231808	25.33	0.0373
EDUCATN	1	1.44031859	1.63	0.3302	1	5.49728255	6.21	0.1303
FACILITS	1	12.52014908	14.15	0.0640	1	12.52014908	14.15	0.0640

PARAMETER	ESTIMATE	T FOR HO: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT	-116.04240371	-4.74	0.0417	24.47927143
BACKLOG	1.00793737	3.03	0.0619	0.28390985
WORKLOAD	2.22572464	6.29	0.0244	0.35396350
OVERDUE	0.03972700	8.60	0.0132	0.00461733
ABSENTEE	5.46249531	5.56	0.0308	0.98179475
EXPERNCE	10.70024040	5.03	0.0373	2.12586600
EDUCATN	2.08597560	2.49	0.1303	0.83698524
FACILITS	-9.02640847	-3.76	0.0640	2.39989030

Exhibit IV-13

REGRESSION ANALYSIS RESULTS 4

Dependent Variable: Agency error rate

Independent Variables: Backlog Index
Overdue index
Workload index
Absentee rate
Case technician experience and education
Office facility rating

GENERAL LINEAR MODELS PROCEDURE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	7	114.36251419	16.33750203	15.26	0.0629	0.981619	7.5863
ERROR	2	2.14148581	1.07074291		STD DEV		AGNCY_ER MEAN
CORRECTED TOTAL	9	116.50400000			1.03476708		13.64000000

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
BKLG_IND	1	0.72462510	0.68	0.4972	1	7.56524882	7.07	0.1172
WORKLOAD	1	18.17780980	16.98	0.0542	1	33.06610150	30.88	0.0309
OVRD_IND	1	53.00300046	49.50	0.0196	1	67.72787767	63.25	0.0154
ABSENTEE	1	14.21727090	13.28	0.0677	1	27.45048506	25.64	0.0369
EXPERNCE	1	22.17591010	20.71	0.0450	1	18.23421991	17.03	0.0540
EDUCATN	1	1.32954905	1.24	0.3811	1	1.25393405	1.17	0.3923
FACILITS	1	4.73434879	4.42	0.1702	1	4.73434879	4.42	0.1702

PARAMETER	ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT	-67.84689206	-3.62	0.0605	18.74055673
BKLG_IND	4.36991656	2.66	0.1172	1.64400881
WORKLOAD	1.75571028	5.56	0.0309	0.31594096
OVRD_IND	0.29755282	7.95	0.0154	0.03741304
ABSENTEE	3.43965505	5.06	0.0369	0.67933280
EXPERNCE	5.42582302	4.13	0.0540	1.31481495
EDUCATN	0.95752322	1.08	0.3923	0.08481927
FACILITS	-2.58072429	-2.10	0.1702	1.22730947

- Agency Error Rate = -116.04 + 1.09*(Backlogged Applications) + 2.23*(Workload Index) + 0.04*(Overdue Redetermination) + 5.46*(Absentee Rate) + 10.70*(Experience) + 2.09*(Education) - 9.03*(Facility Rating).

In this, the seven independent variables explain over 98% of the variation in agency error rate. Moreover, five of the seven variables are significant--all but backlog and education. How closely the equation predicts error rate can be seen in Exhibit IV-14 below.

Exhibit IV-14

ACTUAL VERSUS PREDICTED AGENCY ERROR RATE

DISTRICT OFFICE	ACTUAL AGENCY ERROR RATE	PREDICTED AGENCY ERROR RATE
CLAREMONT	12.8	12.3
LACONIA	12.5	12.2
CONWAY	8.0	8.1
CONCORD	20.3	20.2
PORTSMOUTH	14.7	15.6
DOVER	11.6	11.3
BERLIN	9.4	9.9
MANCHESTER	16.9	16.8
NASHUA	14.8	15.0
SALEM	15.4	15.1

Although the values of the coefficients in the equation do not lend themselves readily to interpretation, the independent variables and the signs associated with them can be interpreted, recognizing that the coefficients in the equation represent the net change in error rate (positive or negative according to the sign) associated with a unit change in the independent variable, as follows:

- The higher the number of backlogged applications, the workload index, the number of overdue redeterminations and/or the absentee rate, the higher the error rate. These results are expected since each of these independent variables is an indicator of a District Office management of caseload or caseworkers.

- The error rate increases as experience or education of caseworkers increases. Possibly, the greater the experience of a worker the more difficult it is to learn new policies and procedures. Similarly, as the years of education increase, workers may become overqualified for the tasks of a caseworker and the resulting boredom or disinterest causes errors.

- As the facility rating gets worse, the error rate improves. This finding is certainly counter-intuitive and may be due to the small sample size--recall that the District Office with the best facility rating had the worst error rate. This "outlier" may have caused the observed negative value to occur.

The value of the regression equations is in the directions they suggest for corrective action. For example, the following could be considered potentially beneficial:

- Changing District Office conditions (for example, increasing staff) in order to reduce the backlog of applications and overdue redeterminations. Such an action should be continuous, not a one time effort. Keeping the backlog down may allow case technicians to devote proper attention to new applications and redeterminations. In sum, a District Office with a high backlog and number of overdue redeterminations is not controlling its caseload.

- Changing District Office conditions to cut down on the absentee rate. The absentee rate may be a function of poor management, poor working conditions, heavy workload or poor staff selection. Determining the cause of the high absentee rate may indirectly lead to elimination of the cause of the high error rate.

- Examining the roles of experience and education in case technician effectiveness. Simply put, more experience and more education does not imply more effectiveness.

The results do show that District Office characteristics in combination are strongly related to the agency error rate and suggest that corrective actions aimed at controlling the variables may have an indirect effect on the error rate. However, we repeat that true cause-and-effect relationships have not been established. District Office administrators should carefully examine the cause and effect relationships implicit in the Medicaid process before making definitive conclusions about the merits of a particular corrective action.

CHAPTER V

METHODOLOGY FOR IMPACT AND BENEFIT-COST EVALUATION OF THE ERROR PRONE PROFILE SYSTEM

CHAPTER V

METHODOLOGY FOR IMPACT AND BENEFIT-COST EVALUATION OF THE ERROR PRONE PROFILE SYSTEM

ABSTRACT

In Chapter I, we discussed the process evaluation of this Project. In this Chapter, we provide our initial concepts of the methodology to be used in the Third Year for the impact and benefit-cost evaluation of the Error Prone Profile System. For the impact analysis, we identify experimental and control District Offices, define measures of effectiveness that compare ineligibility rates before and after implementation, and describe the data collection plan that will be used to compute the measures. Relevant hypotheses are specified and statistical techniques for testing these hypothesis are presented.

The basic approach of benefit-cost analysis methodology is also presented. Costs will be determined in two categories: fixed costs and variable costs. They will include such costs as data collection and profile computation, profile matching, Data Verification Unit (DVU) operation, and other costs. The benefits will be classified as direct or indirect, tangible or intangible, and include: net program savings, net avoidance, improved equity, improved capability of District Offices to allocate staff resources, advancement of research capability to develop other corrective action programs, and others.

A. INTRODUCTION

The New Hampshire Title XIX Quality Control Project was initiated to develop, implement and test a new approach to eligibility determination in the Medicaid program that would reduce error rates and result in net savings to the State.

As discussed in Chapter I, the approach developed to date consists of two major elements:

- an Error Prone Profile: a statistically based guide to determining which kinds of cases are most likely to contain errors, and
- a DVU: an independent unit organized to review intensively cases fitting the profile(s).

The purpose of the project evaluation, then, is to test whether or not the Error Prone Profile System cost-effectively reduces the Medicaid eligibility rate. Specifically, the evaluation focuses on three research questions:

- Is the error prone profile and corrective action system operating as it was designed to operate?
- Does the error prone profile and corrective action system result in significant decreases in error rates for Medicaid eligibility decisions?
- Does the implementation of the error prone profile and corrective action system result in net savings to the State of New Hampshire?

The first research question--dealing with the process evaluation--is answered in Chapter I. The methodology for the second and third is discussed next.

B. RESEARCH DESIGN FOR THE IMPACT EVALUATION

The impact evaluation of the New Hampshire approach to Medicaid eligibility determination is directed toward determining the extent to which the error prone profiles in conjunction with the DVU result in decreases in error rates in Medicaid eligibility determination. In order to minimize variation in case mix, the research question is divided into three parts:

- Does the use of error prone profiles with a DVU significantly reduce Medicaid eligibility error rates among Adult Independent cases?
- Among Nursing Home cases?
- Among AFDC cases?

We further divide the research question in order to ask whether the error prone profiles with a DVU significantly reduce error rates among initial applications and/or among redetermination cases.

1. Experimental Treatments

Error prone profiles were developed for Adult Independent, Nursing Home and AFDC-related cases and were implemented in four experimental District Offices. The observed error rates in these District Offices will be compared with those which previously occurred in the same District Offices and those which are currently occurring in the control District Offices.

Although the ideal profile appeared to be one which would capture about thirty percent of the cases, staffing limitations required that a

profile which captured only about ten percent of the cases be developed for use in Berlin and Conway, the two rural experimental District Offices.

Thus, there are six experimental error prone profiles: error prone profiles designed to identify 30% and 10% respectively of the Adult Independent, Nursing Home and AFDC caseloads. The "control" treatment, of course, is the routine procedure used at the remaining District Offices.

2. Measures of Effectiveness

The ideal measure of effectiveness for this experiment is a comparison of the observed error rate in the experimental District Offices after implementation of the experiment with the rate which would have occurred had the experiment not been in place. Naturally, this comparison cannot be made. Instead, we specify some proxy measures of effectiveness as follows:

- the historical improvement in the error rate, that is, the difference between the error rate in the September, 1977 sample (post-implementation) for the experimental District Offices and the corresponding error rate for those offices in the combined 1975/76 samples (or the 1976 sample alone since it represents the most recent data);

- the difference between the error rate in the 1977 sample for the experimental District Offices and the error rate for those offices predicted by a linear extrapolation of the error rates found in 1975 and 1976, or

- the difference between the improvement in the error rates from 1975/76 to 1977 in the experimental District Offices and the the corresponding improvement in the control District Offices.

Note that each of the above approaches uses a different measure for the error rate that "would have occurred" had the experiment

not been implemented. The following two measures do not address the overall impact but instead measure the impact observed for cases fitting the profiles in the experimental offices:

- the difference, among all cases fitting the profiles, between the error rate in the 1977 sample for the experimental District Offices and the rate found in the 1975/76 sample for those offices (or, the rate predicted for 1977 from a linear extrapolation of the 1975 and 1976 findings).

The final measure of effectiveness is appropriate for only the Initial Application cases. For these cases, the District Office's case technicians will make their judgment of eligibility using <u>routine</u> procedures. Then, the cases fitting the profile (regardless of the finding of the routine review) would be sent to the DVU for intensive review. For these cases, we can observe directly (in a fashion similar to that discussed in Chapter II) the errors detected by the DVU that were <u>not</u> detected by the routine review. In other words, we will have an idea of the error rate that <u>would have resulted</u> without the DVU--at least for Initial Application cases.

<u>Example</u>

The illustrative data set out in Exhibit V-1 help to demonstrate how these measures will be computed. The exhibit provides the number of cases and the number of errors for the 1975, 1976 and 1977 samples for the Control and Experimental Offices. The corresponding data for cases fitting the profiles in 1975, 1976 and 1977 are provided at the bottom of the exhibit.

Exhibit V-1

ILLUSTRATIVE SAMPLE DATA

	"BEFORE"			"AFTER"	
	1975	1976	1975/76	1977(Actual)	Extrapolated
EXPERIMENTAL					
NUMBER OF CASES	160	151	311	177	
NUMBER OF ERRORS	70	64	134	53	
ERROR RATE	0.44	0.42	0.43	0.31	0.40
CONTROL					
NUMBER OF CASES			354	174	
NUMBER OF ERRORS			142	166	
ERROR RATE			0.40	0.38	
EXPERIMENTAL					
NUMBER OF CASES FITTING EPP	35	33	68	38	
NUMBER OF ERRORS	21	18	39	6	
ERROR RATE	0.60	0.55	0.57	0.16	0.50

From these data, we see that:

- the historical improvement from 1975/76 to 1977 in the experimental offices is 0.43 - 0.31 = 0.12; using the linearly extrapolated value of 0.40 (0.44 in 1975, 0.42 in 1976 implies 0.40 in 1977 if same improvement held), the improvement is 0.40 - 0.31 = 0.09.

- the historical improvement of 0.12 in experimental offices can be compared to the improvement of 0.02 in control District Offices (0.40 in 1975/76 minus the 0.38 in 1977). That is, the improvement in experimental District Offices was 0.10 <u>more</u> than in control District Offices.

- the error rate among cases fitting the profiles dropped from 0.57 to 0.16, an improvement of 0.41. Even using the extrapolated value of 0.50, the improvement is 0.50 - 0.16, or 0.34.

The illustrative data discussed above all suggest that the error prone profiles with the DVU are having an impact in the experimental offices. In the evaluation, however, the observed improvements will be tested to determine if they are statistically significant using techniques discussed below.

3. <u>Analysis Plan</u>

The analysis plan to be employed in the impact evaluation will be twofold: translating research questions into testable hypotheses; then, testing the hypotheses using standard statistical procedures. An example of a testable hypothesis is:

- the error rate for the experimental District Offices is <u>no lower than</u> the corresponding error rate for these offices in the combined 1975/76 sample.

If the hypothesis is rejected on the basis of the statistical test, we accept the alternative hypothesis which is that the error rate for experimental

offices is lower than that found in 1975/76. Note that the hypothesis (known in statistics as the "null" hypothesis) is set up so that statistical rejection of the hypothesis means that the error prone profiles and DVU concepts are having a desirable impact.

Using the above hypothesis, for example, we must show that the error rate found in the 1977 sample from experimental offices is statistically significantly below the rate found in 1976/77. If e_2 is the error rate found in the 1977 sample and e_1 is the error rate found in 1975/76, we must show that $e_1 - e_2$ is greater than a certain value given by:

$$k * \sqrt{\left(\frac{n_1 e_1 + n_2 e_2}{n_1 + n_2}\right) * \left(1 - \frac{n_1 e_1 + n_1 e_2}{n_1 + n_2}\right) * \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$$

where n_1 and n_2 are the sample sizes in 1975/76 and 1977 respectively and k is a constant (probably 1.645 if we wish to have only a 5% chance of erroneously rejecting the hypothesis).

<u>Example</u>

Using the data in Exhibit V-1, we see that:

$e_1 = 0.43$

$e_2 = 0.31$

$n_1 = 311$

$n_2 = 172$

Using the above formula, we have:

$$1.645\sqrt{\frac{(311)(0.43)+172(0.31)}{483} * \left(1-\frac{(311)(0.43)+(172)(0.31)}{483}\right) * \left(\frac{1}{311}+\frac{1}{172}\right)} = 0.076$$

Since the observed improvement, 0.12, is greater than 0.076, we conclude that there was a significant improvement in error rates after implementation of the profiles and DVU.

4. Data Base

In order to perform the impact analysis, it is necessary to select samples representing cases "before" and "after" implementation of the DVU. The original 758-case sample drawn from 1975 and 1976 cases will be used as the "before" sample, while a new 400-case sample drawn in 1977 is being used for the post-DVU sample.

The sampling scheme for the selection of the "new" 1977 sample differed significantly from the schemes used in selecting the 1975 and the 1976 samples. Because these samples were used solely to develop the error prone profiles, a simple proportionate sampling plan was used so that the numbers of cases selected from each District Office and the numbers of each type of case were proportional to their numbers in the entire Medicaid population.

The results of the review of the "new" 1977 sample will be used for two purposes. The results must serve as the basis for an evaluation of the effectiveness of the error prone profiles and the DVU in reducing error rates during Phase I of the Project. The results will also be used to develop new profiles. To meet these twin purposes, the new 1977 sample

was stratified so as to ensure that certain types of cases appeared in the sample in sufficient number to perform valid statistical tests of the evaluative hypotheses. Specific details of the sampling plan include:

- The total sample size was 400 cases.

- The "new" sample was selected from the Medicaid caseload as of August, 1977. The sample therefore included cases which were (a) Initial Applications in the months January to June, 1977 (but reviewed by Project staff from March to August, 1977); (b) redetermination (reviewed by Project staff from March to August 1977) which included cases that were scheduled for redeterminations between March and August of 1977 and also non-initial application cases scheduled for redetermination between September, 1977 and February, 1978. Initial Applications in July and August of 1977 were not included in the sample.

- The subpopulation of child welfare children were excluded from the population of Medicaid cases to be sampled. The 1975/76 Samples included these children and the error rates based upon these samples included errors in these cases. These error rates for 1975/76 samples will be recomputed excluding these children.

- Within each experimental office, the proportion of cases to be selected into the sample equaled the proportion of all cases in that office. The 200 experimental office cases were broken down as follows:

District Office	Number of Cases
Berlin	30
Concord/Franklin	58
Manchester	100
Conway	12
	200

Within the control offices, the 200 cases were distributed according to the same procedure, i.e., proportional to total number of cases. Exhibit V-2 displays the allocation of the sample by District Office.

Exhibit V-2

ALLOCATION OF 1977 SAMPLE TO DISTRICT OFFICES

Experimental Offices	New Applications	Redeterminations	Total
Manchester	33	67	100
Concord/Franklin	19	39	58
Conway	4	8	12
Berlin	10	20	30
	66	134	200
Control Offices			
Claremont	6	13	19
Dover	7	14	21
Keene	7	14	21
Laconia	6	12	18
Lebanon	4	6	10
Nashua	8	17	25
Plymouth	3	6	9
Portsmouth	14	28	42
Rochester	4	9	13
Salem	4	7	11
Woodsville	4	7	11
	67	133	200
All Offices	133	267	400

- For each District Office--experimental and control--approximately fifteen percent of the sample consisted of AFDC cases and the remainder were OAA, ANB, or APTD cases. Cases falling in these last three categories were reclassified as Nursing Home or Adult Independent.

- In the experimental offices, twenty-five percent of the cases selected into the sample were correctly matched to a profile in use during the demonstration and had therefore been intensely reviewed during that phase of the Project.

- In all offices Initial Application cases were oversampled to the extent that approximately one-third of the cases were Initial Applications while two-thirds were cases subject to redetermination.

- Within each experimental office the cases to be sampled from the totality of cases which had already been intensively reviewed were selected directly from a list of such cases by using a series of random numbers. Cases in other categories were selected by an inverse sampling scheme. This involved selecting a random starting point for each case within the Medicaid Master File and reading off cases until one was found which matched the category of case being sought.

C. RESEARCH DESIGN FOR THE BENEFIT-COST EVALUATION

As useful as evaluations of program process and impact are, they are sufficient only in those instances where the costs of achieving desired results are not relevant. Thus, if it costs more to implement improved procedures for error reduction than those procedures save by reducing payments made to ineligibles, the procedures are not cost-effective* and should not be implemented unless other intangible benefits are likely to accrue.

---

* Cost-effective is used in this discussion to describe a project with a benefit to cost ratio greater than 1.0. This definition is descriptively useful but not theoretically rigorous.

The general approach to be used, then, is benefit-cost analysis using the following ratio:

$$\text{Benefit-Cost Ratio} = \frac{\text{Gross Benefits}}{\text{Costs}}$$

In the following sections, we describe separately the cost and benefit analysis methodologies that have been developed for this project.

1. Cost Evaluation Methodology

The costs of implementing an Error Prone Profile System in a State will be estimated based on the New Hampshire experience. Thus, the cost evaluation methodology will not focus on the New Hampshire project costs so much as on the costs of implementing the fully developed system in another State, using New Hampshire cost figures.

Costs will be estimated based on the assumption that MEQC reviews will provide the input data necessary to develop the error prone profiles. Therefore, the extensive data collection costs incurred in the first two years of the project will not be necessary to repeat in subsequent implementations.

Costs will be divided into two categories: fixed costs and variable costs. Fixed costs are those costs required to set up the system initially. They include such costs as:

- installing the software program on the State's computer;
- developing the organizational structure, including position descriptions and labor grades, for the DVU;

- providing training to the State staff on the operation of the system;
- developing implementation policies and regulations for promulgation;
- pilot-testing the system in an experimental office.

The variable costs of the system operation are those that increase directly with the level of activity of the DVU. These costs include:

- the salaries and fringe benefits of staff matching cases against the profiles;
- the salaries and fringe benefits of the DVU staff in reviewing error prone cases;
- all overhead costs, including telephone, travel, and postage;
- profile computation costs;
- special data collection costs of the DVU such as payments to banks for information and record retrieval costs;
- costs of eliminating an ineligible case from the rolls, including appeals and processing costs.

These costs will be identified and computed using a chart of accounts specifically designed for the Error Prone Profile System. Thus, the Error Prone Profile System can be viewed as a separate cost center for the State. Specific values will be computed for New Hampshire so that the State can decide whether to continue with the system after the project is over.

2. Benefit Evaluation Methodology

Evaluation of the benefits of the Error Prone Profile System is perhaps the most complex task of the entire project. Four different types of benefits will be considered:

- direct benefits -- the primary intended benefits of the Error Prone Profile System; and

- indirect benefits -- the secondary or "bonus" benefits.

The benefits can also be classified as:

- tangible benefits -- those benefits--direct or indirect--that can be valued; and

- intangible benefits -- benefits that cannot be measured.

Direct benefits will be computed as the actual cost savings achieved by eliminating cases in error from the rolls. These costs will be measured as discussed in Chapter III. Attempts will also be made to estimate the deterrent effects that the Error Prone Profile System will provide. The fraud and misrepresentation rates among recipients may decline if the Medicaid administration is seen as an effective organization with a statistically targeted intensive review. The actual dollar cost saving and cost avoidance will be estimated.

The indirect benefits of the Error Prone Profile System may be far greater than the direct benefits. These benefits will include such items as:

- improved social equity, in that only the truly needy are receiving benefits;

- reduced harassment of recipients who are eligible for a long period of time;

- greater worker productivity and satisfaction;

- improved administration of other State public assistance programs using knowledge gained in Medicaid;

- development of a data base for further corrective action planning; and

- greater acceptance of the program by the general public.

These indirect benefits are predominantely intangible and will be difficult to estimate. Nonetheless, even if the Error Prone Profile System saved no more than it cost, it could still eliminate errors and achieve the indirect benefits listed above; therefore they are very important to address.

3. Summary

In performing the benefit-cost analysis described above, it is important to remember that the nature of costs and benefits will change over the life of the project and post-project periods. Such changes have implications for the way costs and/or benefits of any particular period should be treated. For example, since this is an R&D project, the initial costs were expected to be heavy. The major benefits of this project will be with the future application of the approach in Medicaid and other programs, in New Hampshire and other States.

Furthermore, changes in the cost will occur over time. For instance, review procedures less costly than the intensive review used initially in the project can be considered. As the system becomes operational in a State, it may evolve in a different manner and blend in with regular State operations, or replace other procedures.

Or, the system may perform better than expected because of the deterrent effect associated with a more rigorous review scheme. In particular, the recipient error rate may be reduced more than expected.

The shifts of benefits and costs over time reflect a typical pattern of shifts of a program from demonstration to ongoing routine status. In short, the benefits and costs related solely to the research phase of the Error Prone Profile System will be of lessening interest as time passes. Instead, the longer-lasting benefits of its application to routine activities in Medicaid eligibility determination will become the focus of interest and analysis of the ongoing program for a long time to come.

APPENDIX A

PROFILE MATCH SHEETS

Name______________________________ Month______________

Address______________________________ New Application__________

______________________________ Redetermination__________

Phone Number______________________________ District Office______________

ADULT INDEPENDENT PROFILE

Manchester & Concord

M & C

P	Q
.2066	.7200

MATCH

Yes________

No________

Level I - Do not proceed to Level II if the client does not have at least one of the following:and check CVS "No" match above.

1. Does recipient or spouse own an auto? Yes______ No_____
2. Does recipient or spouse receive a pension? Yes______ No_____
3. Does the recipient have a joint Bank Account? Yes______ No_____

Level II - Answer the following questions only if the condition stated in Level I applies. If any of the variables below are checked affirmatively indicate on the top of the page in the "Yes" column that a profile match has been obtained. Otherwise check (v) "No" above.

4. Case is "In and Out"? Yes______ No_____
5. Is recipient or spouse employed? Yes______ No_____
6. Joint ownership of home? Yes______ No_____
7. Married and living with spouse? Yes______ No_____
8. Does recipient or spouse have earned income? Yes______ No_____
9. Have client or spouse disposed of property in the last three (3) years? Yes______ No_____

MATCH: Case Folder

Yes__________

No__________

MATCH: Outside check

Yes__________

No__________

ADULT INDEPENDENT PROFILE

Berlin/Conway

Match

Yes_____ No_____

Level I - Do not proceed to Level II if the client does not have an individual or joint bank account, and check (✓) "No" match above.

Level II - Answer the following questions only if the condition stated in Level I applies. If any of the variables below are checked affirmatively indicate on the top of the page in the "Yes" column that a profile match has been obtained. Otherwise check (✓) "No" above.

1. Case is In and Out Yes_____ No_____
2. Client is employed full time Yes_____ No_____
3. Client has earned income Yes_____ No_____
4. Case is a new M.A. application case Yes_____ No_____
5. Client has disposed of property in last 3 years Yes_____ No_____

NURSING HOME PROFILE

Berlin/Conway

Match

Yes_____ No_____

Level I - Do not proceed to Level II if the client is not receiving intermediate care, and check (✓) "No" match above.

Level II - If the following condition does not apply check (✓) "No" above, and do not proceed to Level III

1. Client has an individual or joint bank account Yes_____ No_____

Level III - Answer the following questions only if the conditions stated in both Level I and II apply. If any of the variables below are checked affirmatively indicate on the top of the page in the "Yes" column that a profile match has been obtained. Otherwise check (✓) "No" above.

1. Current balance in personal Nursing Home account is greater than $500 Yes_____ No_____

2. Client jointly owns a home in New Hampshire Yes_____ No_____

3. Client receives a pension Yes_____ No_____

4. Recipient has been institutionalized less than 12 months Yes_____ No_____

NURSING HOME PROFILE

Match

Yes_______ No_______

Level I - Do not proceed to Level II if the client is not receiving intermediate care, and check (√) "No" match above.

Level II - If none of the three following conditions apply check (√) "No" above, and do not proceed to Level III

1. Nursing home has 150 beds or more — Yes______ No_______
2. Client has an individual or joint bank account — Yes______ No_______
3. When the client was initially accepted as a new M.A. case, a face to face interview was not conducted by the D.O. with the client or someone acting on their behalf. — Yes______ No_______

Level III - Answer the following questions only if the conditions stated in both Level I and II apply. If any of the variables below are checked affirmatively indicate on the top of the page in the "yes" column that a profile match has been obtained. Otherwise check (√) "No" above.

1. Current balance in personal Nursing Home account is greater than $500 — Yes______ No______
2. Client receives a pension — Yes______ No______
3. Client is 21 or older, but under 65 — Yes______ No______
4. Client has reported 1 or more eligibility changes in the last three years which could affect eligibility — Yes______ No______
5. Recipient has been institutionalized less than 12 months — Yes______ No______

AFDC PROFILE

Match

Yes_____ No_____

If any of the variables below are checked affirmatively indicate on the top of the page in the "Yes" column that a profile match has been obtained. Otherwise check (✓) "No" above

1. Case name rents home Yes_____ No_____

2. Case name is married Yes_____ No_____

3. Case is In & Out Yes_____ No_____

AFDC PROFILE

Berlin/Conway

Match

Yes_____ No_____

Level I - Do not proceed to Level II if client has not reported two or more changes in the last three years which could affect eligibility, and check (✓) "No" match above.

Level II - Answer the following questions only if the condition stated in Level I applies. If any of the variables below are checked affirmatively indicate on the top of the page in the "Yes" column that a profile match has been obtained. Otherwise check (✓) "No" above.

1. Case name rents home	Yes_____	No_____
2. Case name is married	Yes_____	No_____
3. Case is In & Out	Yes_____	No_____

APPENDIX B

SUMMARY STATISTICS FROM DEMONSTRATION

New Hampshire Title XIX Quality Control Project

Data Verification Unit Summary Statistics for: March - August

ALL CASES

	Manchester	Concord	Berlin	Conway	Total
Number of Cases Screened	986	466	340	168	1960
Number of Apparant Matches	205	142	38	36	421
Number of Validated Matches	172	126	35	34	367
Number of Cases in Error	103	74	19	14	210
Overall Error Rate	50.24%	52.11%	50%	38.89%	49.88%
Number of Matched Cases in Error	95	70	17	14	196
Number of Non-Match Cases in Error	8	4	2	0	14
Error Rate Match	55.23%	55.55%	48.57%	41.18%	53.4%
Error Rate Non-Match	24.24%	25%	66.7%	0%	25.92%

CASES BY CATEGORY

	Manchester	Concord	Berlin	Conway	Total
AI					
Overall Error Rate	52.83%	34.78%	23.53%	27%	38.73%
Number of Matched Cases in Error	27	16	4	7	54
Number of Non-Match Cases in Error	1	0	0	0	1
Error Rate Match	52.94%	37.21%	25%	29.2%	41.04
Error Rate Non-Match	50%	0%	0%	0%	12.5%
NH					
Overall Error Rate	48.8%	59.77%	64.7%	80%	54.70%
Number of Matched Cases in Error	57	47	10	4	118
Number of Non-Match Cases in Error	4	4	1	0	9
Error Rate Match	55.88%	62.66%	62.5%	80%	64.14%
Error Rate Non-Match	17.39%	33.33%	100%	0%	25%
AFDC					
Overall Error Rate	51.85%	77.78%	100%	60%	62.22%
Number of Matched Cases in Error	11	7	3	3	24
Number of Non-Match Cases in Error	3	0	1	0	4
Error Rate Match	57.89%	87.5%	100%	60%	68.57%
Error Rate Non-Match	37.5%	0%	100%	0%	40%

CASES BY CATEGORY

	Manchester NA	Manchester RD	Concord NA	Concord RD	Berlin NA	Berlin RD	Conway NA	Conway RD	TOTAL NA	TOTAL RD
AI										
Number of Cases Screened	90	390	54	154	43	104	30	74	217	722
Number of Apparent Matches	17	36	13	33	13	4	18	8	61	81
Number of Validated Matches	17	34	12	31	12	4	17	7	58	76
Number of Cases in Error	10	18	4	12	2	2	6	1	22	33
NH										
Number of Cases Screened	45	324	52	142	33	110	9	27	139	603
Number of Apparent Matches	23	102	25	62	13	4	2	3	63	171
Number of Validated Matches	18	84	23	52	13	3	2	3	56	142
Number of Cases in Error	11	50	16	36	7	4	1	3	35	93
AFDC										
Number of Cases Screened	30	107	16	48	26	24	10	18	82	197
Number of Apparent Matches	12	15	2	7	0	4	2	3	16	29
Number of Validated Matches	10	9	1	7	0	3	2	3	13	22
Number of Cases in Error	4	10	1	6	0	4	2	1	7	21

PRE-DETERMINED SPEND-DOWN CASES*

	Man-chester NA	Man-chester RD	Concord NA	Concord RD	Berlin NA	Berlin RD	Conway NA	Conway RD	TOTAL NA	TOTAL RD
AT										
Number of Cases Screened	19	20	3	24	10	1	1	2	33	47
Number of Apparent Matches	9	5	3	8	4	1	1	2	17	16
Number of Validated Matches	8	4	2	8	4	1	1	2	15	15
Number of Cases in Error	7	4	1	7	4	0	1	1	13	12
NH										
Number of Cases Screened	0	0	0	0	0	0	0	0	0	0
Number of Apparent Matches	0	0	0	0	0	0	0	0	0	0
Number of Validated Matches	0	0	0	0	0	0	0	0	0	0
Number of Cases in Error	0	0	0	0	0	0	0	0	0	0
AFDC										
Number of Cases Screened	12	2	1	2	0	1	1	0	14	5
Number of Apparent Matches	12	2	1	1	0	0	1	0	14	3
Number of Validated Matches	10	2	1	1	0	0	1	0	12	3
Number of Cases in Error	5	2	1	1	0	0	1	0	7	3

SUMMARY OF ELEMENT MATCHES FOR MONTH FOR OFFICE

District Office Manchester Month Mar.-August

Nursing Home Cases		BEFORE VALIDATION YES	BEFORE VALIDATION NO	AFTER VALIDATION YES	AFTER VALIDATION NO
LEVEL I		125	0	122	3
LEVEL II:	#1	77	48	76	49
	#2	53	72	59	66
	#3	32	93	32	93
LEVEL III:	#1	32	93	33	92
	#2	78	107	18	107
	#3	24	101	23	102
	#4	38	87	33	92
	#5	49	77	36	90
Adult Independent Cases					
LEVEL I	#1	29	24	29	24
	#2	7	46	8	45
	#3	36	17	40	13
LEVEL II:	#4	14	39	12	41
	#5	7	46	9	49
	#6	18	35	17	36
	#7	43	10	44	9
	#8	7	46	9	44
	#9	5	48	6	47
AFDC Cases					
LEVEL I		N/A	—	N/A	—
LEVEL II:	#1	6	21	1	26
	#2	11	16	9	18
	#3	14	13	12	15

SUMMARY OF ELEMENT MATCHES FOR MONTH FOR OFFICE

District Office Concord Month Mar. - August

		BEFORE VALIDATION		AFTER VALIDATION	
Nursing Home Cases		YES	NO	YES	NO
LEVEL I		87	0	86	1
LEVEL II:	#1	63	24	62	25
	#2	45	42	60	27
	#3	16	71	23	64
LEVEL III:	#1	23	64	23	64
	#2	15	72	16	71
	#3	8	79	8	79
	#4	26	61	19	68
	#5	33	54	30	57
Adult Independent Cases					
LEVEL I	#1	27	19	27	19
	#2	2	44	2	44
	#3	32	14	35	11
LEVEL II:	#4	11	35	10	36
	#5	5	41	9	37
	#6	23	23	20	26
	#7	27	19	27	19
	#8	6	40	12	34
	#9	7	39	8	38
AFDC Cases					
LEVEL I		N/A	N/A	N/A	N/A
LEVEL II:	#1	3	6	2	7
	#2	5	4	4	5
	#3	2	7	2	7

SUMMARY OF ELEMENT MATCHES TO DATE FOR OFFICE

District Office Berlin   Month Mar - August

		BEFORE VALIDATION		AFTER VALIDATION	
Nursing Home Cases		YES	NO	YES	NO
LEVEL I		17	0	17	0
LEVEL II:	#1	17	0	16	1
	#2				
	#3				
LEVEL III:	#1	0	17	0	17
	#2	3	14	3	14
	#3	5	12	5	12
	#4	13	4	12	5
	#5				
Adult Independent Cases					
LEVEL I		17	0	16	1
LEVEL II:	#1	1	16	1	16
	#2	0	17	0	17
	#3	2	15	2	15
	#4	13	4	13	4
	#5	2	15	1	16
	#6				
	#7				
	#8				
AFDC Cases					
LEVEL I		4	0	3	1
LEVEL II:	#1	0	4	0	4
	#2	3	1	3	1
	#3	2	2	2	2

SUMMARY OF ELEMENT MATCHES TO DATE FOR OFFICE

District Office Conway Month Mar - August

Nursing Home Cases		Before Validation YES	Before Validation NO	After Validation YES	After Validation NO
LEVEL I		5	0	5	0
LEVEL II:	#1	5	0	5	0
	#2				
	#3				
LEVEL III:	#1	0	5	0	5
	#2	1	4	1	4
	#3	1	4	1	4
	#4	3	2	3	2
	#5				

Adult Independent Cases		Before Validation YES	Before Validation NO	After Validation YES	After Validation NO
LEVEL I		26	0	24	2
LEVEL II:	#1	3	23	3	23
	#2	0	26	3	23
	#3	8	18	10	16
	#4	17	9	18	8
	#5	3	23	6	20
	#6				
	#7				
	#8				

AFDC Cases		Before Validation YES	Before Validation NO	After Validation YES	After Validation NO
LEVEL I		5	0	5	0
LEVEL II:	#1	0	5	0	5
	#2	4	1	4	1
	#3	1	4	1	4

APPENDIX C

DATA COLLECTION INSTRUMENTS USED DURING DEMONSTRATION

New Hampshire Title XIX Quality Control Project

Data Verification Unit Control Sheet for Each Case

Case Number ____________ Case Reviewer ______________________

District Office ____

Type of Case

	Application	Redetermination
AI		
NH		
AFDC		

Correct Match to Profile ______ Incorrect Match to Profile ______

Number of Hours Spent on Validating Match ______________________

Unusual Expenses Incurred During Validating Match ______________

____

Date of Initiation of Review __________ Date of Completion ______

Number of Hours Spent on Review _______

Unusual Expenses Incurred During Review _________________________

____

Case Correct ______ Case in Error ______

Number Months in Error ___________________

Dollar Amounts/Month of Error:

Month 1 ______ Month 2 ______ Month 3 ______

Month 4 ______ Month 5 ______ Month 6 ______

Error Occurred: Before Last Review_______At Last Review _________

After Last Review _______

Agency Error _____ Client Error _____ Agency & Client Error ______

Nature of Error ____

____

- -

District Office Disposition of Case

________________________ ________________________

Agree with DVU Disagree with DVU

If DO Disagrees, Explain why __________________________________

____

NATURE OF MATCH FOR EACH CASE

		BEFORE VALIDATION		AFTER VALIDATION		REASON FOR CHANGE
Nursing Home Cases		YES	NO	YES	NO	
LEVEL I		___	___	___	___	___
LEVEL II:	#1	___	___	___	___	___
	#2	___	___	___	___	___
	#3	___	___	___	___	___
LEVEL III:	#1	___	___	___	___	___
	#2	___	___	___	___	___
	#3	___	___	___	___	___
	#4	___	___	___	___	___
	#5	___	___	___	___	___
Adult Independent Cases						
LEVEL I		___	___	___	___	___
LEVEL II:	#1	___	___	___	___	___
	#2	___	___	___	___	___
	#3	___	___	___	___	___
	#4	___	___	___	___	___
	#5	___	___	___	___	___
	#6	___	___	___	___	___
	#7	___	___	___	___	___
	#8	___	___	___	___	___
AFDC Cases						
LEVEL I		___	___	___	___	___
LEVEL II:	#1	___	___	___	___	___
	#2	___	___	___	___	___
	#3	___	___	___	___	___

New Hampshire Title XIX Quality Control Project

Data Verification Unit Summary Statistics for:

ALL CASES

	Manchester	Concord	Berlin	Conway	Total
Number of Cases Screened					
Number of Apparent Matches					
Number of Validated Matches					
Number of Cases in Error					
Overall Error Rate					
Number of Matched Cases in Error					
Number of Non-Match Cases in Error					
Error Rate Match					
Error Rate Non-Match					

CASES BY CATEGORY

	Manchester		Concord		Berlin		Conway		TOTAL	
	NA	RD	NA	RD	NA	RD	NA	RD	NA	RD
AI										
Number of Cases Screened										
Number of Apparent Matches										
Number of Validated Matches										
Number of Cases in Error										
NH										
Number of Cases Screened										
Number of Apparent Matches										
Number of Validated Matches										
Number of Cases in Error										
AFDC										
Number of Cases Screened										
Number of Apparent Matches										
Number of Validated Matches										
Number of Cases in Error										

PRE-DETERMINED SPEND-DOWN CASES*

	Man-chester		Concord		Berlin		Conway		TOTAL	
	NA	RD	NA	RD	NA	RD	NA	RD	NA	RD
AI										
Number of Cases Screened										
Number of Apparent Matches										
Number of Validated Matches										
Number of Cases in Error										
NH										
Number of Cases Screened										
Number of Apparent Matches										
Number of Validated Matches										
Number of Cases in Error										
AFDC										
Number of Cases Screened										
Number of Apparent Matches										
Number of Validated Matches										
Number of Cases in Error										

*Pre-determined spend-down case means the case is judged to be spend-down at the time of the match.

CASES BY EACH REVIEWER

Reviewer ______________________ Month __________

	Man-chester		Concord		Berlin		Conway		TOTAL	
	NA	RD	NA	RD	NA	RD	NA	RD	NA	RD
AI										
Number of Cases Screened										
Number of Apparent Matches										
Number of Valida-ted Matches										
Number of Cases in Error										
NH										
Number of Cases Screened										
Number of Apparent Matches										
Number of Valida-ted Matches										
Number of Cases in Error										
AFDC										
Number of Cases Screened										
Number of Apparent Matches										
Number of Valida-ted Matches										
Number of Cases in Error										

SUMMARY OF ELEMENT MATCHES FOR MONTH FOR OFFICE

District Office ____________________ Month ____________

		BEFORE VALIDATION		AFTER VALIDATION	
Nursing Home Cases		YES	NO	YES	NO
LEVEL I		___	___	___	___
LEVEL II:	#1	___	___	___	___
	#2	___	___	___	___
	#3	___	___	___	___
LEVEL III:	#1	___	___	___	___
	#2	___	___	___	___
	#3	___	___	___	___
	#4	___	___	___	___
	#5	___	___	___	___
Adult Independent Cases					
LEVEL I		___	___	___	___
LEVEL II:	#1	___	___	___	___
	#2	___	___	___	___
	#3	___	___	___	___
	#4	___	___	___	___
	#5	___	___	___	___
	#6	___	___	___	___
	#7	___	___	___	___
	#8	___	___	___	___
AFDC Cases					
LEVEL I		___	___	___	___
LEVEL II:	#1	___	___	___	___
	#2	___	___	___	___
	#3	___	___	___	___

IMPORTANT CHANGES IN PROCEDURE DURING THE MONTH

1.

2.

3.

4.

New Hampshire Title XIX Quality Control Project
Data Verification Unit Summary Statistics for
Project to Date Through

ALL CASES

	Manchester	Concord	Berlin	Conway	Total
Number of Cases Screened					
Number of Apparent Matches					
Number of Validated Matches					
Number of Cases in Error					
Overall Error Rate					
Number of Matched Cases in Error					
Number of Non-Match Cases in Error					
Error Rate Match					
Error Rate Non-Match					

CASES BY CATEGORY

	Man-chester		Concord		Berlin		Conway		TOTAL	
	NA	RD	NA	RD	NA	RD	NA	RD	NA	RD
AI										
Number of Cases Screened										
Number of Apparent Matches										
Number of Validated Matches										
Number of Cases in Error										
NH										
Number of Cases Screened										
Number of Apparent Matches										
Number of Validated Matches										
Number of Cases in Error										
AFDC										
Number of Cases Screened										
Number of Apparent Matches										
Number of Validated Matches										
Number of Cases in Error										

PRE-DETERMINED SPEND-DOWN CASES*

	Manchester		Concord		Berlin		Conway		TOTAL	
	NA	RD	NA	RD	NA	RD	NA	RD	NA	RD
AI										
Number of Cases Screened										
Number of Apparent Matches										
Number of Validated Matches										
Number of Cases in Error										
NH										
Number of Cases Screened										
Number of Apparent Matches										
Number of Validated Matches										
Number of Cases in Error										
AFDC										
Number of Cases Screened										
Number of Apparent Matches										
Number of Validated Matches										
Number of Cases in Error										

CASES BY EACH REVIEWER

Reviewer ________________________ Month ___________

	Man-chester		Concord		Berlin		Conway		TOTAL	
	NA	RD	NA	RD	NA	RD	NA	RD	NA	RD
AI										
Number of Cases Screened										
Number of Apparent Matches										
Number of Valida-ted Matches										
Number of Cases in Error										
NH										
Number of Cases Screened										
Number of Apparent Matches										
Number of Valida-ted Matches										
Number of Cases in Error										
AFDC										
Number of Cases Screened										
Number of Apparent Matches										
Number of Valida-ted Matches										
Number of Cases in Error										

SUMMARY OF ELEMENT MATCHES TO DATE FOR OFFICE

District Office ____________________ Month ________

		BEFORE VALIDATION		AFTER VALIDATION	
Nursing Home Cases		YES	NO	YES	NO
LEVEL I		___	___	___	___
LEVEL II:	#1	___	___	___	___
	#2	___	___	___	___
	#3	___	___	___	___
LEVEL III:	#1	___	___	___	___
	#2	___	___	___	___
	#3	___	___	___	___
	#4	___	___	___	___
	#5	___	___	___	___
Adult Independent Cases					
LEVEL I		___	___	___	___
LEVEL II:	#1	___	___	___	___
	#2	___	___	___	___
	#3	___	___	___	___
	#4	___	___	___	___
	#5	___	___	___	___
	#6	___	___	___	___
	#7	___	___	___	___
	#8	___	___	___	___
AFDC Cases					
LEVEL I		___	___	___	___
LEVEL II:	#1	___	___	___	___
	#2	___	___	___	___
	#3	___	___	___	___

APPENDIX D

CASE TECHNICIAN QUESTIONNAIRE

Name ______________________________

Date ______________________________

District Office ______________________________

Case Technician Questionnaire

This questionnaire has been prepared by the Medicaid Research Project staff to provide information on the workload, experience and training of case technicians in all District Offices. All information will be strictly confidential and will be analyzed and presented in aggregated form for each District Office so that no case technician is identified individually. The primary purpose of the questionnaire is to provide information on the variations in workloads, experience and training of case technicians in each District Office. The information will be used to determine if any of these factors can explain variations in error rates computed for each District Office on the basis of our intensive sampling program. Although we recognize that memories are not perfect, please answer all questions to the best of your ability.

For the sake of clarification, some of the significant terms which repeatedly occur in the questionnaire are defined below.

Definitions:

Initial Application - includes Assistant Payment cases where the case technician determines initial eligibility for a specific category of assistance or aid. Also includes closed cases that are reapplying for eligibility status and eligible food stamp clients who are seeking eligibility for other Assistant Payment programs. Clients who do not pursue eligibility status subsequent to Intake and Referral screening should not be considered in your initial application workload totals.

Redetermination (Recertification) - includes Assistant Payment cases where the case technician redetermines the eligibility status of an open case.

Case Maintenance - case transactions that do not affect eligibility such as address, variations in resources and income and procedural changes.

Verification - involves efforts on the part of the case technician to obtain pertinent information related to recipient eligibility determination through the inquiry or interrogation of the recipient or third parties. The verification effort does not include an examination of outside collateral sources.

Investigation - involves efforts on the part of the case technician to obtain pertinent information related to recipient eligibility determination by conducting a thorough outside investigation of collateral sources relevant to eligibility determination.

I. Workload

1. Using the format below, estimate the number of cases you worked on over the past month (or the previous month)

Type	Number of Application Cases	Number of Redetermination Cases
Adult		
AFDC		
MA In & Out		
Food Stamps		
Totals		

2. Estimate the fraction of your time spent working exclusively on initial application and redetermination cases. The remainder of your time would be spent on case maintenance and other various and sundry duties

Initial Application	%
Redetermination	%
All other duties	%
Total working hours =	100 %

3. Approximately what percentage of your workload is money-payment versus non-money payment cases?

Money Payment	%
Non-Money Payment	%
Total	100 %

4. What percentage of your current application/redetermination workload is determined through the implementation of each interviewing approach illustrated below?

	Application	Redetermination
Face to face	%	%
Telephone	%	%
Mail	%	%
Combination of Interviewing Approaches	%	%
Total Percentage	100 %	100 %

5. What percentage of your current application/redetermination workload is spent determining eligibility through communication with the recipients, relative of recipient, other party or combination of sources?

	Application	Redetermination
Recipient	%	%
Relative	%	%
Other Party	%	%
Combination of Sources	%	%
Total Percentage	100 %	100 %

6. How are application/redetermination cases assigned to you by your supervisor?

	Adult	AFDC	MA In & Out	Food Stamps
First Come First Serve				
Appointment System				
Case Randomly Assigned				
Geographic Area				
Alphabetically				
Transactional Basis				
Specialization				
Other (Specify)				

7. Estimate the average amount of time which you currently spend for each task illustrated below?

Tasks	Total Hours Per Week
Handling Emergencies	
Traveling	
Investigating Fraud	
Attending Meetings	
Processing Initial Applications	
Making Redeterminations	
Performing Case Maintenance Actions	
Other Reports	
Other (Please Specify) _______________	
Total Hours Per Week	

8. On the average, how much total time do you spend verifying a single application and a single redetermination case? Also how much total time do you spend on the average upgrading a single case maintenance procedure? Specify your answer in hours or minutes, whichever is appropriate. (Note: Although the total time to verify a single case may be spread out over several days compute your answer cumulatively)

Total Time Spent on a Single Case

	Application	Redetermination	Case Maintenance Action
Adult			
AFDC			
MA In & Out			
Food Stamps			

9. What number of application/redetermination cases per day do you consider to be your maximum reasonable workload? Answer the question assuming you were working only on a particular aid category. (i.e. how many AFDC initial application cases could you reasonably process per day?)

Maximum Daily Reasonable Workload

	# of Initial Applications	# of Redeterminations
Adult	#	#
AFDC	#	#
MA In & Out	#	#
Food Stamps	#	#

10. With respect to your current workload, check (✓) the answer that more often applies to you. Check "a" if you handled all aspects of a case. Check "b" if you handled only certain aspects of the case such as the interview.

a.______ I performed a variety of tasks with respect to my current workload.

b.______ I perform specialized duties with respect to my current workload.

11. NOTE: Question #11 is voluntary

To what extent do you believe that each of the following factors cause errors? Code in the spaces provided below.

0 = not a cause at all (less than 10% of errors)
1 = a slight cause (between 10% and 30% of errors)
2 = moderate cause (between 30% and 60% of errors)
3 = high cause (greater than 60% of errors)

a.____ lack of direction from state office administration

b.____ lack of direction from District Office administration

c.____ recipients do not report needed information accurately or on time

d.____ department policies are unclear.

e.____ inadequate supervision is provided

f.____ case technicians are not motivated to determine eligibility correctly

g.____ pay is too low to motivate case technicians

h.____ case technicians give recipients the benefit of the doubt too often

i.____ case technicians do not thoroughly verify information provided by recipients

j.____ case technicians do not put through needed budget changes on time

k.____ the caseload is too large or the staff is insufficient.

l.____ orientation training is inadequate

m.____ in service training provided too infrequently

n.____ staff meetings held too infrequently

o.____ physical condition of building is inadequate

12. To what extent do you verify and to what extent do you investigate the following? Code in the spaces provided below.

0 = less than 10% of the time
1 = between 10% and 40% of the time
2 = between 40% and 70% of the time
3 = more than 70% of the time

	VERIFICATION		INVESTIGATION	
	Applic.	Redet.	Applic.	Redet.
Birthdate	____	____	____	____
N.H. Resident	____	____	____	____
Living Arrangement	____	____	____	____
Disability Determination	____	____	____	____
Marital Status	____	____	____	____
Real Property	____	____	____	____
Disposal of Property (within the last 5 years)	____	____	____	____
Savings Accounts	____	____	____	____
Checking Accounts	____	____	____	____
Nursing Home Accounts	____	____	____	____
Trust Funds	____	____	____	____
Credit Union Accounts	____	____	____	____
Cash on Hand	____	____	____	____
Stocks and Bonds	____	____	____	____
Burial Funds	____	____	____	____
Life Insurance	____	____	____	____
Medicare	____	____	____	____
Blue Cross Blue Shield	____	____	____	____
Other Third Party Insurance	____	____	____	____

	VERIFICATION Applic.	VERIFICATION Redet.	INVESTIGATION Applic.	INVESTIGATION Redet.
Earned Income	___	___	___	___
Other Income	___	___	___	___
Income In Kind	___	___	___	___
Unemployment Compensation	___	___	___	___
Workman's Compensation	___	___	___	___
Pensions	___	___	___	___
Social Security (SSI)	___	___	___	___
Veterans	___	___	___	___
Other benefits from Government	___	___	___	___
Legal Liability of Relatives	___	___	___	___
Recipient Liability	___	___	___	___
Grandfathered Coverage Provisions	___	___	___	___
Comparison of Expenses to Income	___	___	___	___
Registry of Deeds	___	___	___	___
Probate Records	___	___	___	___
Division of Motor Vehicles	___	___	___	___
Bureau of Vital Statistics	___	___	___	___
Out of State Collateral Sources	___	___	___	___

13. Which are your most difficult cases to handle? Why?______________

____

____

____

____

II. Experience

1. What date did you start working in the Department of Welfare?__________
2. What date did you start working as a case technician?______________
3. Indicate the number of months you worked as a case technician or a related position in another state.______________

III. Training/Education

1. Did you receive any formal classroom type training before starting your job as a case technician?______________
2. Did you receive any other type of training before starting your job as a case technician?______________

3. If you have been given any on-the-job training, indicate the approximate duration of this training.______________________________

4. Indicate highest level of education. (Circle)

   0 - One year of high school or less

   1 - 2 to 3 years of high school or less

   2 - High School graduate

   3 - 1 year of college

   4 - 2 to 3 years of college

   5 - College graduate

   6 - Some graduate School

   7 - Graduate School degree

NOTE: The following is voluntary

Additional Comments

Please make any comments which would be relevant to reducing errors in Medicaid! ______________________________

APPENDIX E

COMPARATIVE ANALYSIS OF DISTRICT OFFICES QUESTIONNAIRE

District Office______________________

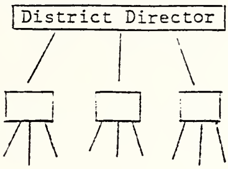
COMPARATIVE ANALYSIS OF DISTRICT OFFICES

Staffing Variables

The following questions on Organizational Structure will be answered for the entire offic

1. In chart form indicate the hierarchy in the District Office

   Example:



2. List the number of supervisors, caseworkers and clerks.

Office Policies and Procedures

The following questions on Case Assignment Policy will be answered for A. MA-only technicians and B. all technicians in the district office. Please indicate the responses for each group separately.

1. By what method are cases assigned in this office? (random, alphabet, geography, category, nursing home vs. independent living arrangement, application vs. redeterminations, appointments, other - please specify)

   A. MA only technicians

   B. All technicians

2. Whose responsibility is this assignment

   A. MA only technicians

   B. All technicians

3. Is there any specialization among the technicians in terms of working on a particular category of assistance or program, or a particular task such as interviewing or budget sheets. Do these specialties, if they exist, change or rotate over time?

   A. MA only technicians

   B. All technicians

The following questions apply to MA only casework

4. Who is responsible for redetermination scheduling and what method is employed?

5. What safeguards are instituted to insure confidentiality of casefolders, documents and correspondence.

6. List the elements of eligibility that require documentation in this District Office and acceptable sources for each. How is this enforced and by whom. Is this verification category specific? (e.g. are earnings verified for all categories or AFDC only?)

7. Under what conditions, if any, does the case technician leave the office to obtain verification. What sources are contacted.

8. What sources of verification are contacted by telephone.

9. What is the frequency of home visits by the technician and what are the circumstances surrounding such a visit.

10. In what manner are the cases cross referenced to insure the technician has access to all the facts concerning an assistance group (i.e. that the information in the food stamp record is not in contradiction to that in the A.P. folder

11. By what criteria are cases selected for review by the supervisor. Is this system the same for experienced staff and new hires.

12. In descending order indicate which individual reviews the most cases - District Director, A P Supervisor, Assistant Supervisor, or Case Technician II

1. most
2.
3.
4. least

13. In what format (report, memo, verbal) and with what frequency does the caseworker report to the supervisor, assistant supervisor or case technician II

14. What is the nature of on-going technician training in this office. Include the following topics as they apply: individual vs. group, new policy, individual weaknesses, frequency.

15. What is the role of the Field Consultant to the <u>District Office</u> as a whole.

a. How often are they available

b. To whom are they available

c. Are they involved in training

Is this the same for MA only technicians?

The following questions will be answered in terms of the entire office

16. Who has responsibility for the files

17. Under what circumstances are "out cards" used

18. Who has access to the files

19. What is the most common cause for a misplaced file

20. How oft and by whom is the Master File updated

Facility Variables

The following questions will be answered for a) MA only technicians and also b) all technicians in the district office. Please indicate the responses for each group separately

1. How many technicians per room on the average

   A.

   B.

2. What percentage of interviews are private interviews (technician and assistance group only)

   A.

   B.

3. What percentage of technicians have a calculator? If not 100%, then what percentage have access to one.

   A.

   B.

4. What percentage of technicians have updated manuals

   A.

   B.

5. Are forms and supplies readily available

   A.

   B.

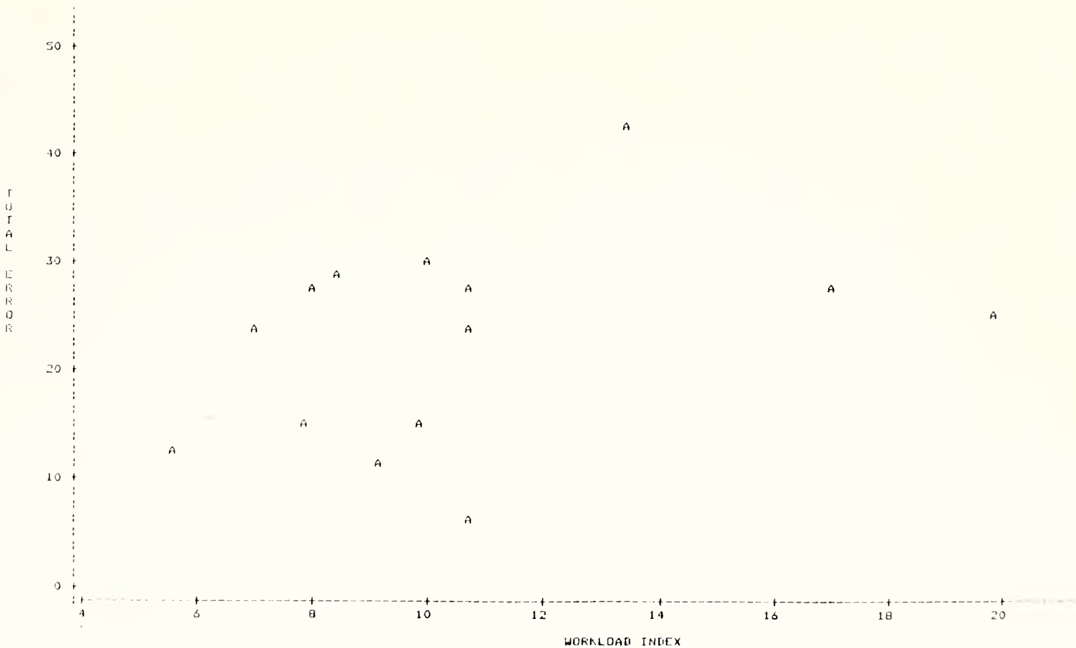
6. How many telephone lines are there local and WATTS.

7. What provisions are made for office security

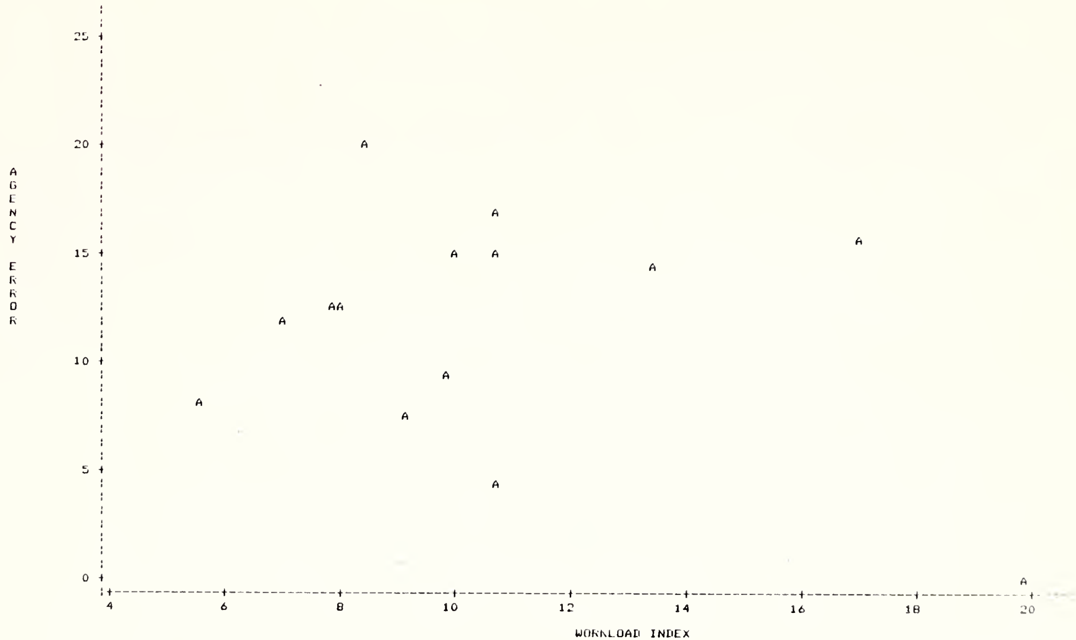
APPENDIX F

SCATTERPLOTS OF DISTRICT OFFICE CHARACTERISTICS VERSUS ERROR RATES

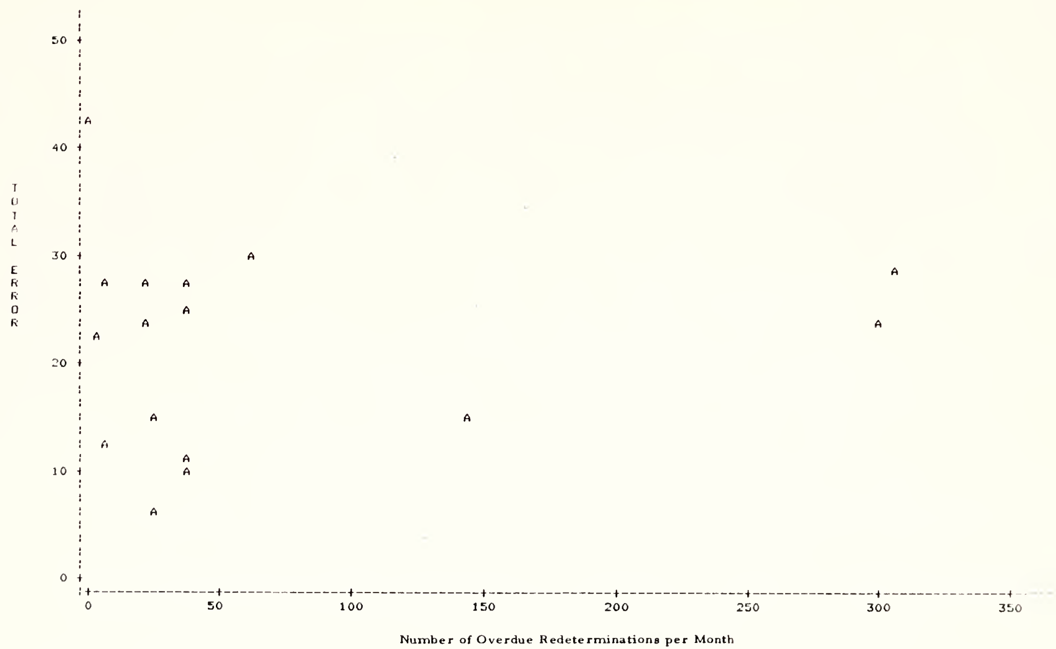
SCATTER PLOT OF WORKLOAD VERSUS OVERALL ERROR



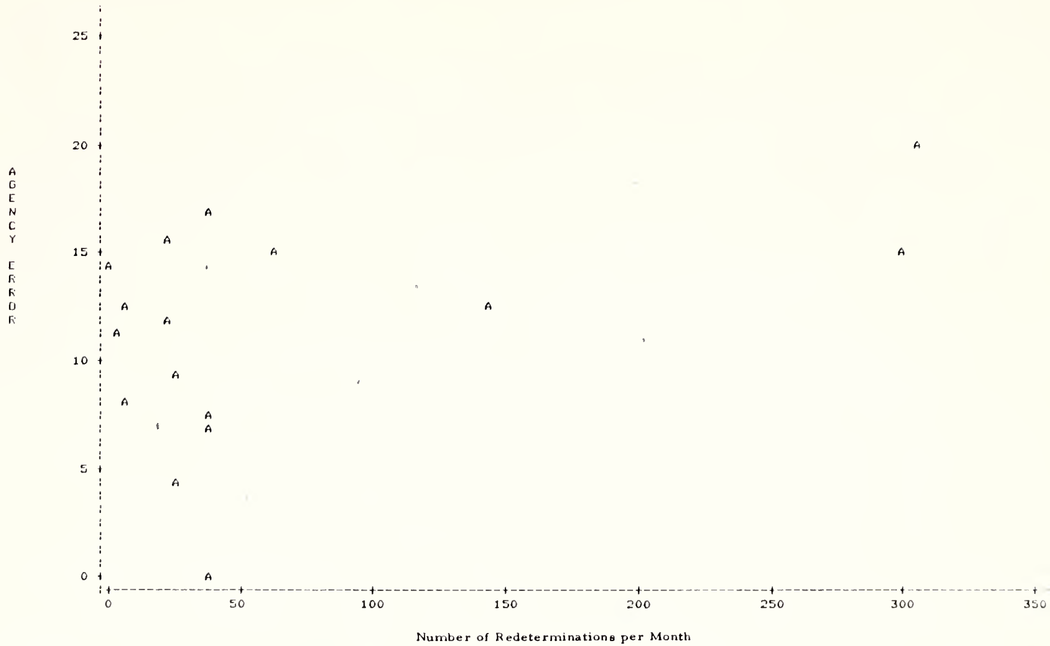
SCATTER PLOT OF WORKLOAD VERSUS AGENCY ERROR



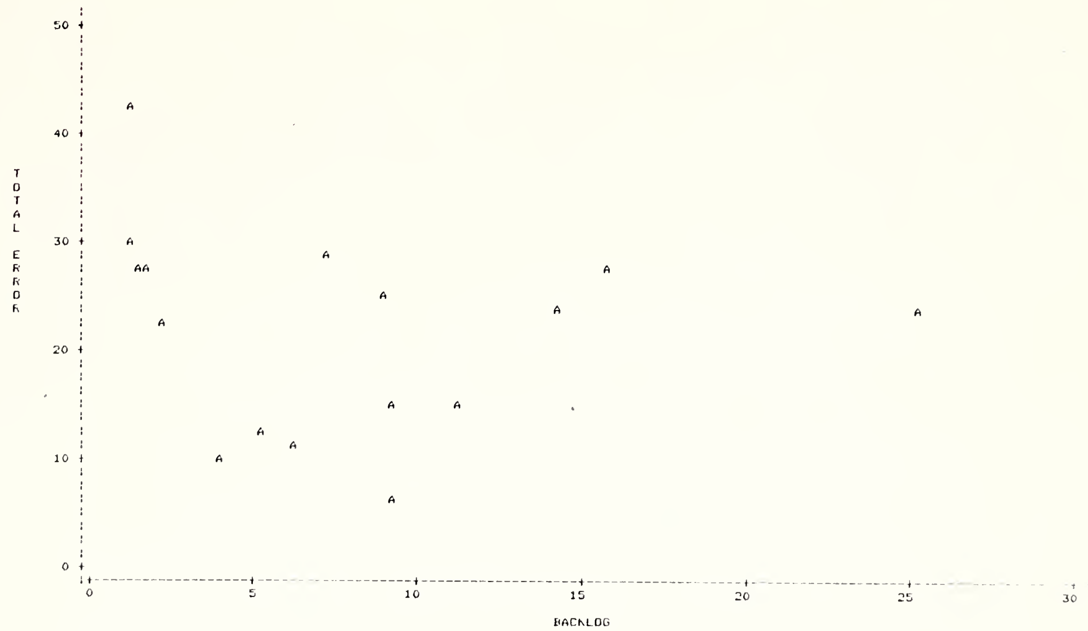
SCATTER PLOT OF THE NUMBER OF OVERDUE REDETERMINATIONS VERSUS OVERALL ERROR



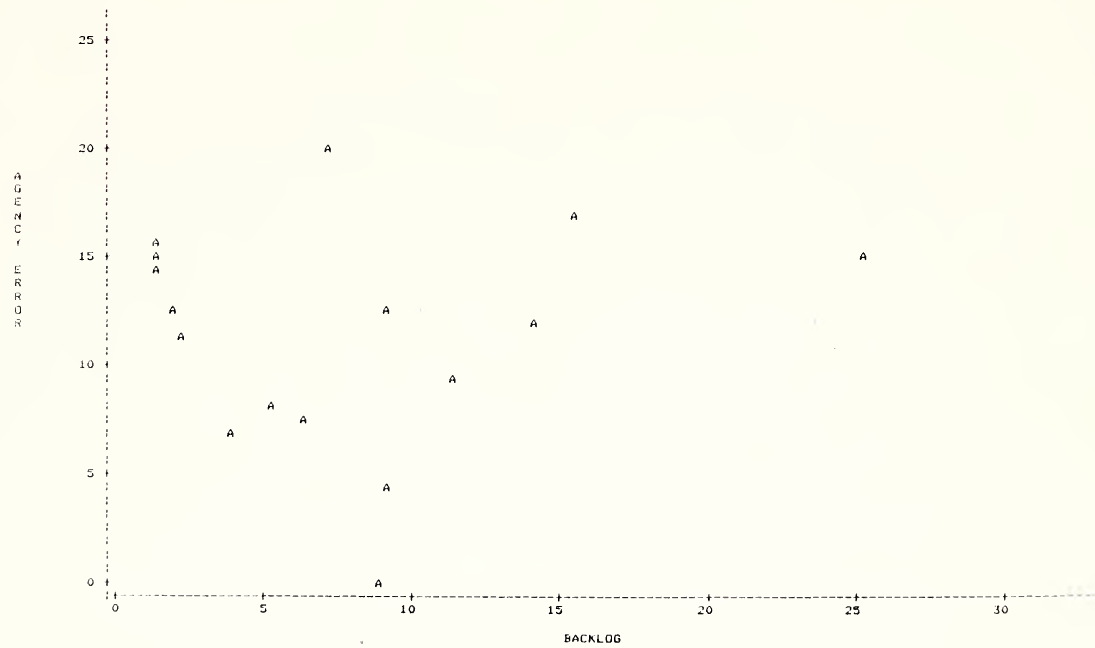
SCATTER PLOT OF THE NUMBER OF OVERDUE REDETERMINATIONS VERSUS AGENCY ERROR



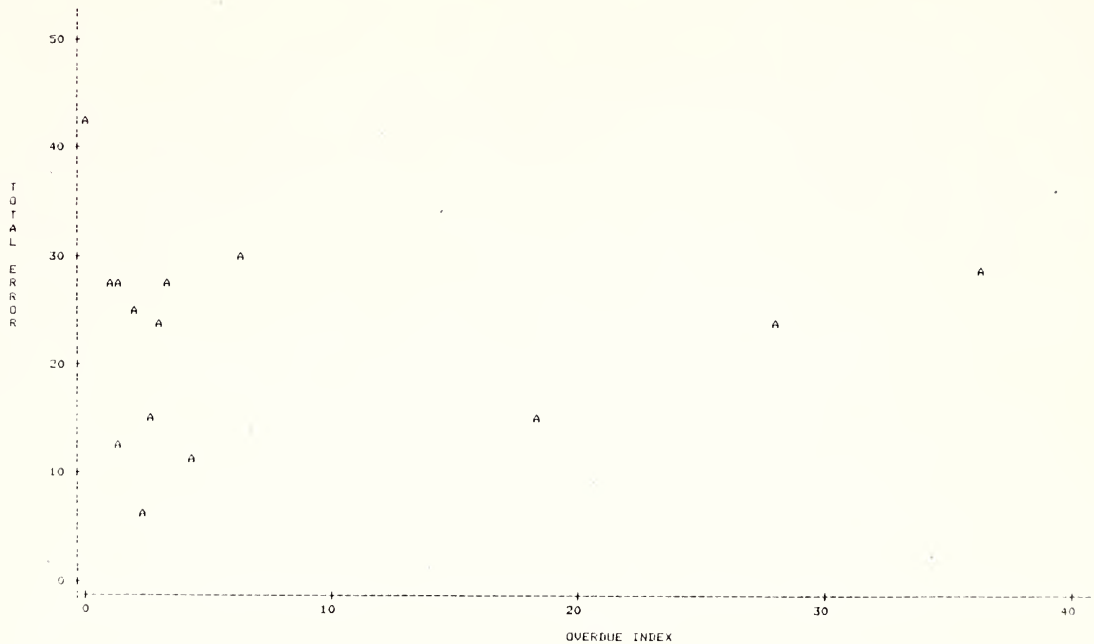
SCATTER PLOT OF NUMBER OF BACKLOG APPLICATIONS VERSUS OVERALL ERROR



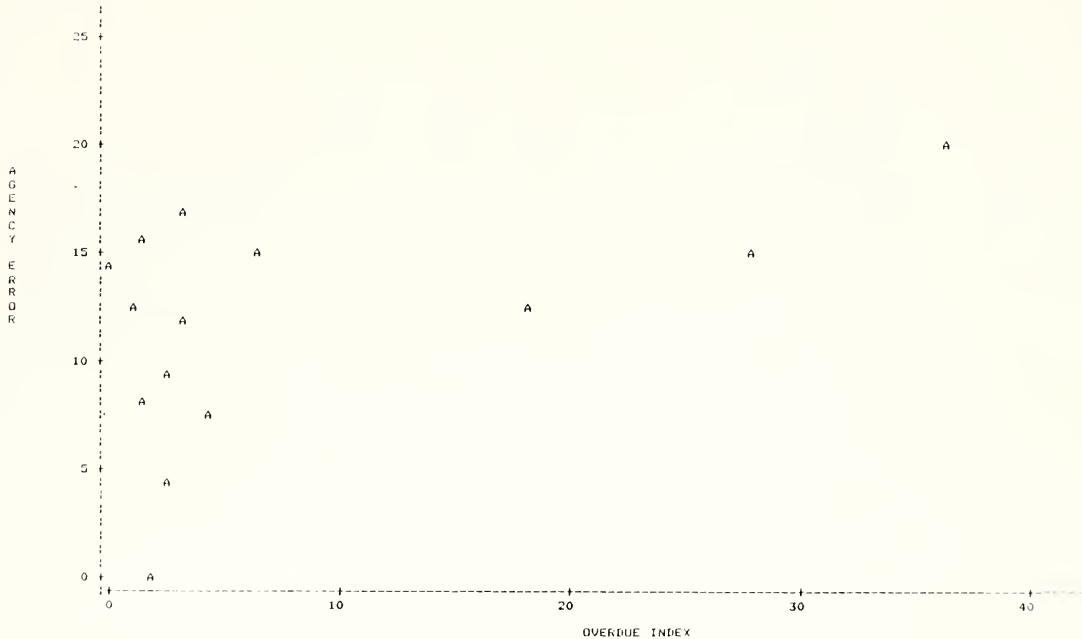
SCATTER PLOT OF THE NUMBER OF BACKLOG APPLICATIONS VERSUS AGENCY ERROR



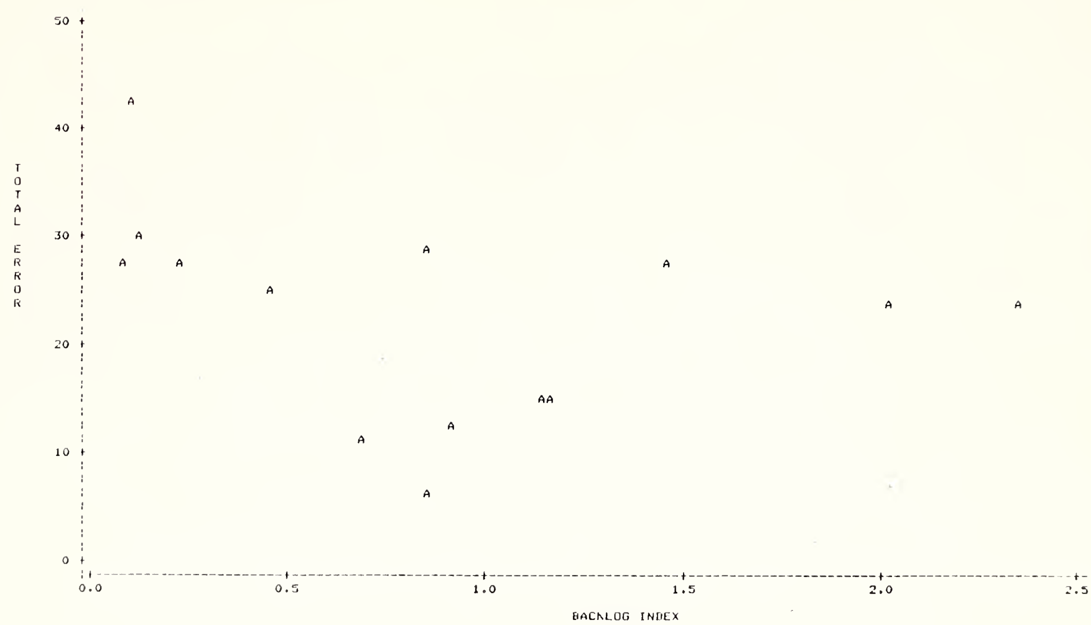
SCATTER PLOT OF OVERDUE INDEX VERSUS OVERALL ERROR



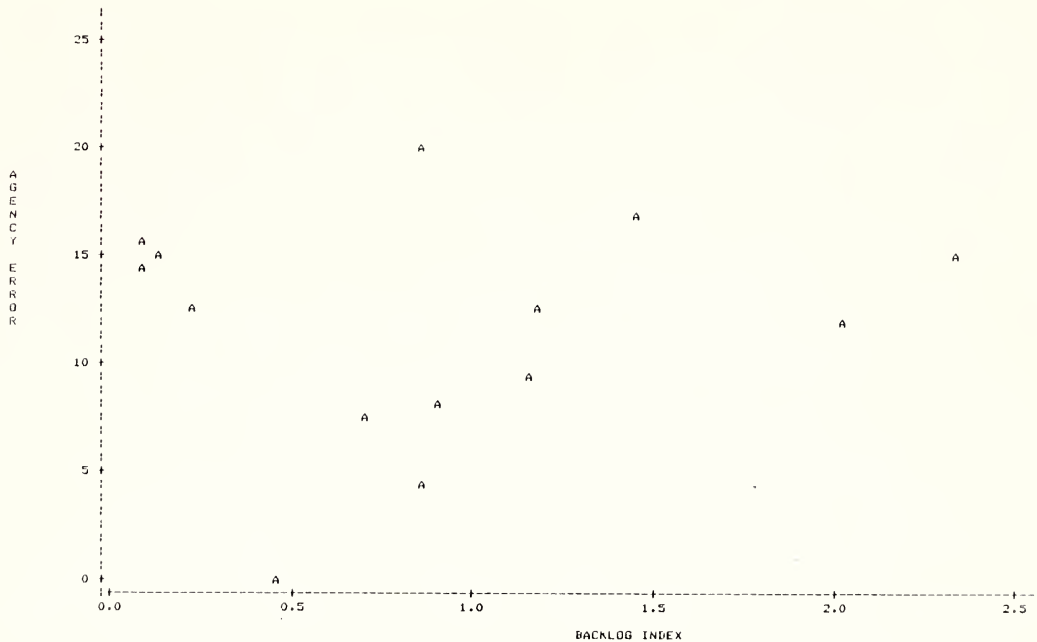
SCATTER PLOT OF OVERDUE INDEX VERSUS AGENCY ERROR



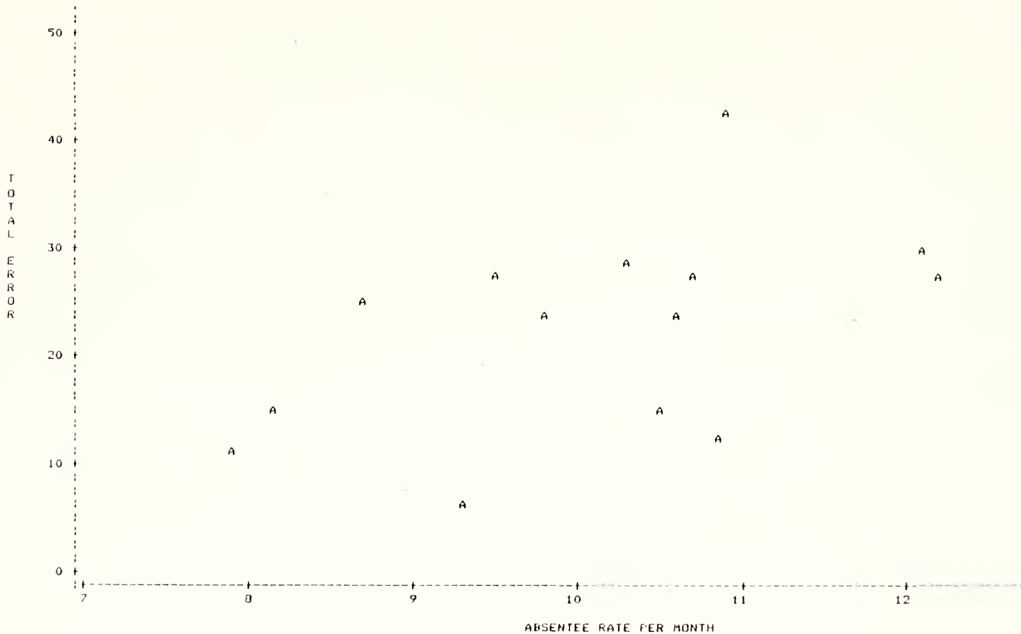
SCATTER PLOT OF BACKLOG INDEX VERSUS OVERALL ERROR



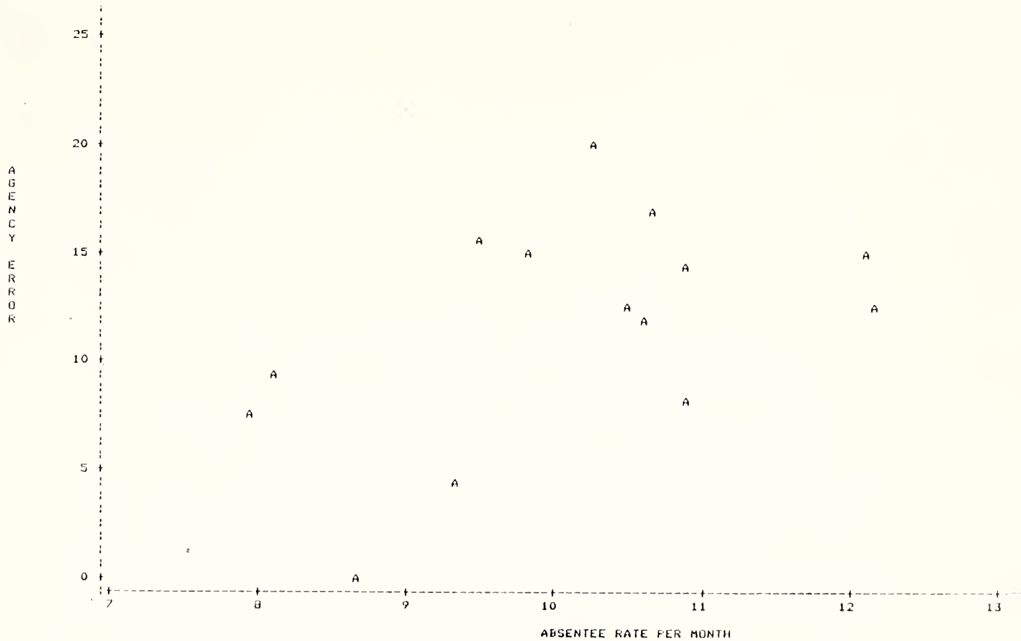
SCATTER PLOT OF BACKLOG INDEX VERSUS AGENCY ERROR



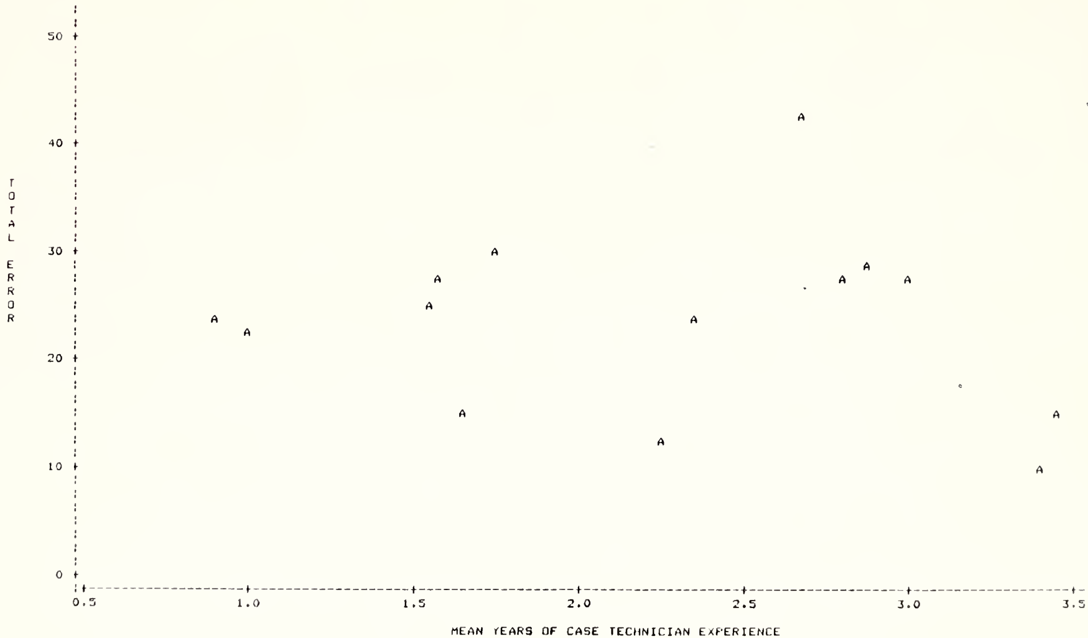
SCATTER PLOT OF ABSENTEE RATE VERSUS OVERALL ERROR



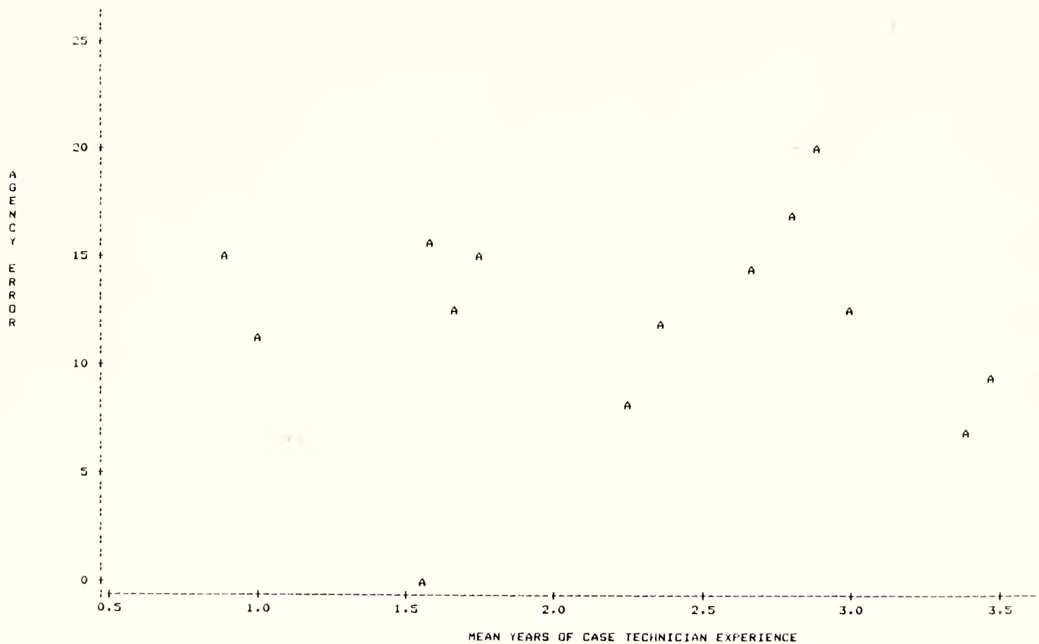
SCATTER PLOT OF ABSENTEE RATE VERSUS AGENCY ERROR



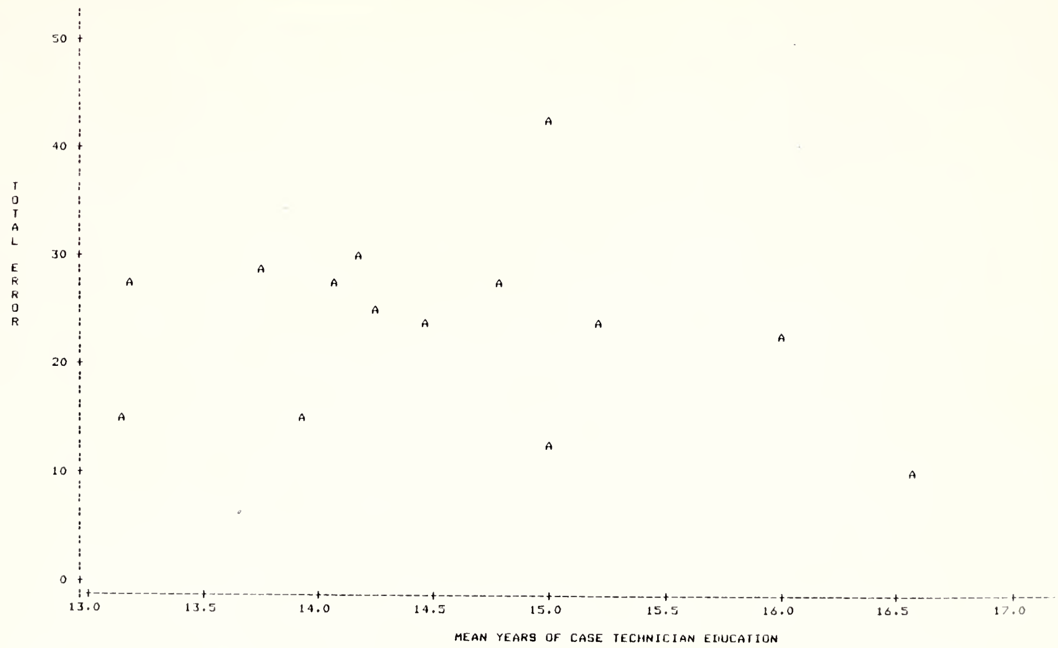
SCATTER PLOT OF AVERAGE YEARS OF EXPERIENCE VERSUS AGENCY ERROR



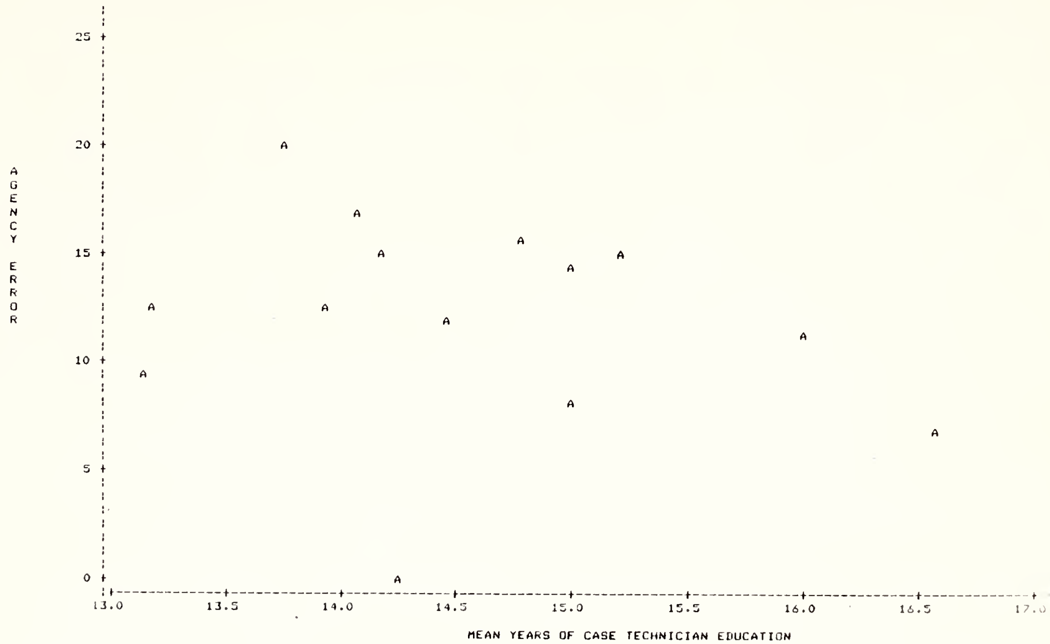
SCATTER PLOT OF AVERAGE YEARS OF EXPERIENCE VERSUS AGENCY ERROR



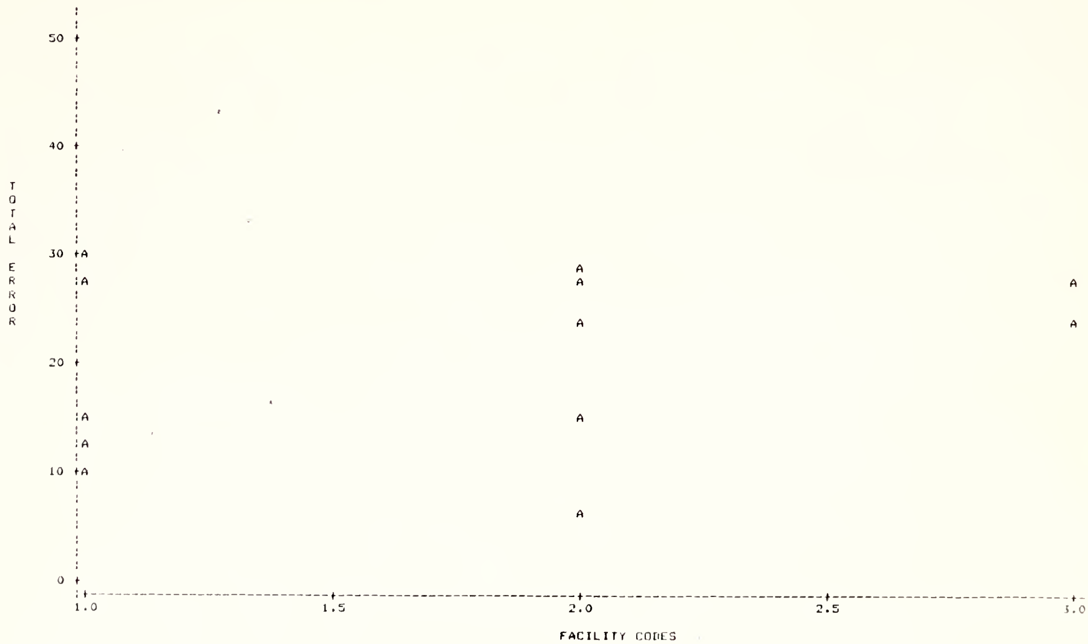
SCATTER PLOT OF AVERAGE YEARS OF EDUCATION VERSUS OVERALL ERROR



SCATTER PLOT OF AVERAGE YEARS OF EDUCATION VERSUS AGENCY ERROR



SCATTER PLOT OF FACILITY
RATING VERSUS OVERALL ERROR RATE



SCATTER PLOT OF FACILITY RATING VERSUS AGENCY ERROR RATE